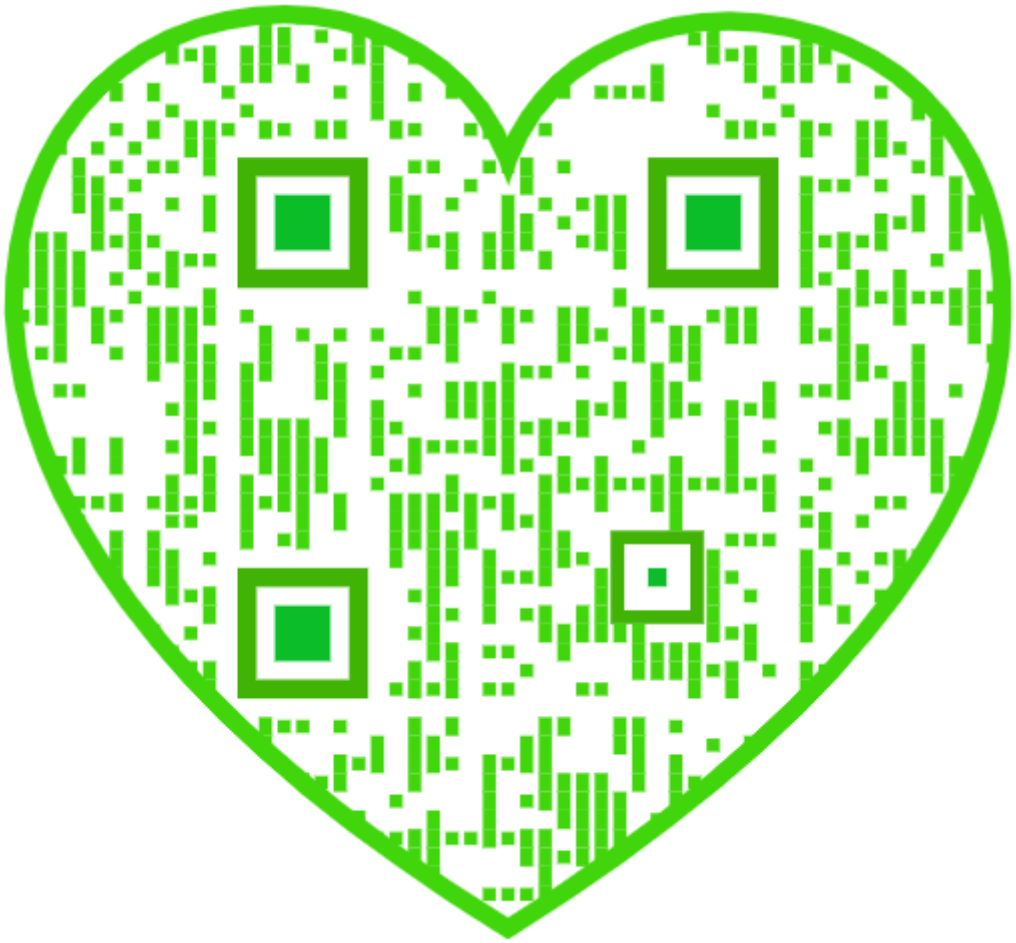

THE RACE HORSE

HOW TO BUY, TRAIN, AND RUN HIM.

Harry Hall. Newmarket. E. Hacker.

Saunterer.

Winner of the Whip, and of the Goodwood Cup, 1858.

THE

RACE HORSE

HOW TO BUY, TRAIN, AND RUN HIM

BY

LIEUT.-COL. WARBURTON, R.E.

THE BOSTON PUBLIC SOCIETY

LONDON

SAMPSON LOW, MARSTON & COMPANY

Limited

St. Dunstan's House

FETTER LANE, FLEET STREET, E.C.

1892

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PREFACE.

THE sport of racing is one which shares with other out-door amusements the advantages of healthy employment for body and mind. It surpasses most of them in one important respect. While with those, a time must come when the loss of bodily vigour and the decrepitude of age give rise to regret that we should have paid no heed to the warning of Talleyrand, "Young man, what a dreadful old age you are laying up for yourself;" for the enjoyment of racing we are never too old; there is never a moment of his life, so long as reason holds, when a racing man cannot derive gratification from his favourite pursuit, and there are few when he cannot bodily engage in it. The other sports of youth and middle age leave in the volume of our lives many a blank space as our story approaches its conclusion. Racing fills each page up to the last, when FINIS announces our translation to happier hunting-grounds. But the greatest pleasure of all connected with this noble sport, one which, unlike most pleasures, contributes to his physical and temporal welfare, that of training horses himself, is usually rejected by the owner. It necessitates early rising, sobriety, and their accompaniments, and furnishes plenty of employment to the mind as well as to the body, turning an idler into a working man, besides removing at least one obstacle to success.

That racing means ruin has become almost an axiom; doubtless a similar opinion would obtain regarding any of the industrial pursuits if carried on, not only as a pastime, but without the industry and technical know-

ledge necessary to success, which, in the case of nine owners of racehorses out of ten, or even a greater proportion, are absolutely wanting. But there is really no reason why racing should not pay if conducted on business principles, just as any other industry pays, not by the acquisition of large sums of money in the space of minutes and seconds, but by the application of skill and industry and patience, which alone can ensure success in any pursuit. That these are seldom forthcoming in racing, on the part of owners, I think all will admit, and none more readily than those who have lost their money through undertaking what they were neither qualified to perform, nor willing to sacrifice time and labour to learn ; preferring to entrust the task to others whose interests were not identical with their own.

As to the knowledge requisite, the apprenticeship which qualifies an uneducated lad to undertake, at a later period, the charge of a racing stable, would, of course, qualify one superior to him in this respect for the same task. This is an ordeal to which few gentlemen will submit. In place thereof they can learn the art of training from observation, from experience, and from oral or written instruction. The last I have in the ensuing pages endeavoured, and, I hope, with some success, to impart, success which I believe will attend the efforts of those who deem this little work worthy of their perusal and attention, and who intelligently interpret the precepts and practice therein enjoined. These have been derived from actual experience of training in New Zealand, the West Indies, the United Kingdom, and the United States of America, and from observation of the methods employed by the best and the worst trainers, and the success or failure attending their efforts, as well as from the opinion of those whose reputation is deservedly high, and therefore worthy of consideration.

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INTRODUCTION.

NO apology is due for the production of a work on training the racehorse. Numerous publications have seen the light, and raised great expectations in the minds of the many who are desirous of obtaining a certain knowledge of the trainer's art, but only to create disappointment. Most of these works are interesting to lovers of the thoroughbred, but fail to tell him exactly what he wants to know; namely, how to train him. They are often replete with anecdotes of what racehorses, and especially those with whom the writer has been connected, have done, but the means by which they have been brought to do it is generally left to the imagination of the reader, who has to evolve such information out of his inner consciousness, a source of knowledge which is seldom found to be of practical value. After reading the interesting work of a trainer who was well qualified to afford every information connected with a racing establishment, and also capable of imparting it in a literary form, which few men of his class can do, I asked him one day why he had not descended to details as regards breaking, stable management, shoeing, and all the particulars which form the structure of training just as much as the materials and labour with which a house is built form the completed edifice; and his reply was a curious one. It would be impertinent, and a work of supererogation, he said, to enter into details which every lad who had served an apprenticeship in a well-conducted stable knew as well as himself; and more than that, the public would not

care to hear about such details. Bearing in mind that in distant colonies so long as thirty years ago, when, of necessity, I had to train horses myself, if I wished to run them with any certainty of success, it was always my ambition and endeavour, wherein I spared no trouble or expense, to acquire an accurate knowledge from the best sources of the very details which my trainer friend considered it unnecessary to enter into, and also that my companions engaged in the same pursuit were equally anxious with myself to obtain such information, whether from books or observation, and from lack of opportunity we failed to do from both sources; I arrived at the conclusion that a work on training the racehorse, conveying in intelligible language, and with the precision of which language is capable, information as to the best methods employed, or at all events those employed by the best and most successful trainers, modified by the observation and experience of many years, would be acceptable to a very large number of persons who are interested in one way or another, not only in racing itself, but in all the relations which exist between man and the thoroughbred horse. Consequently, for many years I jotted down or remembered the results of my own personal experience and observation, and such new facts and experiences as I derived from the most well-informed and intelligent trainers with whom I was acquainted, and often gave them practical form—always in view of producing at some future time a work which should embrace all the details of training, so far as I became acquainted with them. The result I give to the public. I have spoken of training as an art, or, to employ the meaning of the word, "the application of human knowledge and skill to the formation of anything," and there are few arts wherein more knowledge and skill is requisite than in the production of a racehorse fit to run. The difficulties are here greatly enhanced by exigencies which in other arts do not impede or affect the artist. A painter, an architect, a machinist may exercise his

vocation at leisure, tolerably secure that if the material at his disposal is allowed to remain unused, or if he completes his task before or after the time prescribed, no injury will accrue to the structure. The trainer has no such assurance; he must produce his work on a given day, at a given hour, not before or after, and he has to work with materials which, being endowed with vitality and volition, present difficulties which do not occur to him who has to deal with inanimate matter. Horses, like men, have idiosyncrasies of mind and body; like men, they require humouring, and cannot safely be treated as machines (which is too often done), and what is termed tact must be exercised with both. The progress of training must be gradual and progressive—never standing still. Inaction with the race-horse means deterioration. The bow must be relaxed when not in actual use, or depreciation infallibly ensues. Moreover, the subject of the trainer's experiment is affected by change of climate, of food, of water, of air, of location, is, like ourselves, "subject to all the skyey influences;" and in the artificial life which he leads in a training stable, subject to the dominant will of the master, is precluded from availing himself to the full extent of his capacity of those instincts which nature has granted him for self-protection, in common with all her animal productions; wherefore it becomes incumbent on the trainer to give through his art that protection of which he has deprived the animal committed to his charge; and unsleeping vigilance on his part is required to do justice to his horse's powers. The Spanish proverb tells us "It is the eye of the master that fattens the horse." It is the trainer's eye that makes him fit.

In all arts certain methods are recognized as necessary to the end in view; these again are governed by general principles. Both principles and methods are evolved from long practical experience, often transmitted from generation to generation; susceptible indeed of improvement, and as regards the horse espe-

cially, of beneficial change where variations in climate, food, courses, and other conditions are met with: but in the main they must be adhered to if success is to be assured. In England, the adopted home of the thoroughbred, in the space of little more than two hundred years, the puny but enduring Arab of the desert, by the skill and energy of the Anglo-Saxon race, has been transformed into an animal who for courage, speed, power and beauty challenges the admiration of the world. From the centre of his adoption his descendants have spread over all the world. The boundless clearings and prairies of North America, where civilization is contemporary with his European existence; the vast stretches of Southern America; the torrid plains of Australasia; and the humid and fertile pastures of New Zealand are peopled with his descendants. Wherever the Anglo-Saxon race lives and thrives, there the Anglo-Arab flourishes. He is found as an emigrant, but scarcely as a colonist, in the ancient and populous Empires of India and China.

The higher if newer civilizations of Europe have recognized his merits and secured his services. Troops of buyers, representing private enterprises and the Governments of France, Germany, Italy, Austro-Hungary, and even semi-barbarous Russia, have been and are still competitors in the English market to secure those qualities in the thoroughbred which practical experience has taught them improves the breed of their respective countries. America, too, both North and South, sends forth her buyers every year to secure the best stallions and the best mares that money can buy.

No one thinks of reverting to the original stock from whence the thoroughbred has sprung. The highest racing authority in England a quarter of a century ago said that a fourth-class English thoroughbred could give the best Arabian ever foaled five stone over any distance from one to twenty miles. Not only is the Anglo-Arab pre-eminent for racing purposes, but

an infusion of his blood improves every other breed with which it is blended. The manager of a large tramway company in Liverpool told me that he bought all his horses in Ireland after trying those coming from elsewhere. The Irish horses he found to be by far the most effective, and he attributed this to the large proportion of thoroughbred blood in their veins. The Irish hunter maintains his superiority for the same reason, and, for cavalry purposes, Irish remounts are unrivalled. That the admixture of other blood is not attended with such favourable results may be inferred from the following: The same gentleman alluded to above informed the author that he had tried American horses, and they did fairly well at first, but he found they had deteriorated of late years. This he attributed to the introduction of the Norman Percheron, an animal whom no one in England would think of crossing with native mares. The truth of this statement was confirmed in the judgment of the author by an incident connected with the same breed which came under his personal observation. After the Franco-Prussian war of 1870 the French determined to eliminate from their army all grey horses, which they judged to be too conspicuous for warlike purposes. These partook largely of the Percheron blood, of which the prevailing colour is grey. About 1874 large numbers of these horses were sold by order of the French Government at auction. As the prices ruled low, the British Commissariat purchased a considerable number as transport horses for the contending armies in the sham fights, or "Autumn Manœuvres," as they were called, of that year, which were organized for the instruction of the British army. It was found that these horses, though of good size and respectable appearance, could not perform anything like the work done by English and Irish horses, and, moreover, consumed a greater quantity of forage.

Reverting now to a higher type, and one for which the United States is justly pre-eminent—the trotter—a gentleman best capable of judging and intimately con-

nected with the breeding of trotters in America—Mr. Brodhead, of Woodburn, Kentucky, breeder of Maud S.—assured me that if two minutes to the mile were attained, it would be by a horse nearly thoroughbred.

I have enumerated these instances tending to show the practical value of the thoroughbred outside of the racing track, in what Mr. Jorrocks called "The minor fields of horse enterprise," in order to emphasize the importance which ought to be attached to his production. Now, excellence can only be attained through strict attention to, and a scientific treatment of, the three branches of production, breeding, feeding, and training. The neglect of any one of these implies deterioration, and insures it. The greatest skill exercised in any two of these branches will, to a great extent, be neutralized by a neglect of the third. In its most comprehensive sense, the last named may be said to include all three, and, even in its more limited signification, it necessarily covers the second and third; while it is difficult to train a young horse properly without a knowledge of the characteristics and peculiarities of his breed. Thus the name of his sire conveys to a trainer who understands his art, a volume of information as to the treatment of a yearling, which he would otherwise be obliged to ascertain by experiments very much to the detriment of the animal. I propose, however, to say as little as possible about breeding in this work, leaving that branch of the subject to those who have devoted to it more attention, or, what is often the case, more imagination. I myself have been able to derive more valuable information from a study of the "Racing Calendar" than from all the theories put forward with great confidence by the exponents of infallible systems of breeding in treatises where facts are too frequently selected or distorted to suit some preconceived idea held by the writer, just as each advocate in a suit selects his facts and endeavours to magnify them in support of the brief he holds, while he distorts or minimizes those of his adversary. The subject of

breeding cannot, however, be altogether avoided, for the trainer must be supposed to include within the range of his duties that of advice to his employer on the purchase and breeding of thoroughbreds, which his intimate experience of their performances and peculiarities qualifies him to offer. It will always, if he is worth his salt, or if he has due regard to his own interests, be his aim and desire to have under his care the best material that can be obtained. If he has practical experience, and has benefited thereby, his knowledge of the occult characteristics of various breeds—or rather, I should say, families, for all thoroughbreds are of one breed—will serve him in good stead when in the paddock or the sale ring, his employer consults him as to what he should or should not buy, and nearly as valuable should be his opinion regarding what the latter ought or ought not to breed. The judging and purchase of the yearling will, therefore, form one of the most important duties of a trainer. The most skilful trainer in the world cannot make a slow horse go fast. No one can make a silk purse out of a sow's ear. Within a certain limit he can improve the pace of a horse, be he slow or fast, but this limit is inelastic. On the other hand, he can nurse and develop the qualities of a speedy animal so as to increase his lasting powers, but this also has its limit. Knowledge of the veterinary art in a trainer is most desirable, especially if qualified by modesty. By an observant man, and especially one who reads, it is inevitably acquired. It will be useful to him at all times in training, but more especially in the incipient stages of accident and disease, and when the services of a qualified veterinary surgeon cannot be obtained at all, or cannot be obtained at once, the remedies quickly applied are usually the most efficacious. Pope tells us that "a little knowledge is a dangerous thing," but in this case ignorance is far more dangerous. Wherefore the diseases and accidents to which the race-horse is liable will be treated of in a separate chapter, in so far as they affect actual training,

and a few practical remedies, suggested by good authorities, and confirmed by experience, will be set forth. At the same time the services of a qualified veterinary surgeon should always be available, and his specialty should be racehorses, because the treatment of these will differ widely from those of other horses.

Ignorance of anatomy is unpardonable in a trainer, because, in fact, it means ignorance of the materials at his disposal and on which he has to work. The same may be said, generally, of the qualities of food. What would be thought of an engineer who knew neither the construction of his engine, nor the qualities of the fuel which it consumed?

I think, therefore, that the comprehensiveness of the term "training," which I have claimed for it, has been fully established.

In all treatises on the arts it must be remembered that very little of the matter can lay claim to originality. At the most it can claim the virtues of arrangement, discrimination, and completeness. Indeed, the writer's knowledge of the art of training is principally derived from written and oral information obtained from the most competent practical authorities, digested in the crucible of practical experience extending over more than a quarter of a century. If any of my readers, on perusal of these chapters, should meet with obvious truths and familiar statements, let them remember that although Solomon's dictum, "There is no new thing under the sun," may seem a somewhat sweeping assertion, yet, taken *cum grano*, it is a tolerably correct one. I may add that the writer's experience is not solely derived from training horses in any one country but in several, where the conditions of climate, food, ground, labour, and even of the horse himself, were different. In each he has found it necessary to accommodate the teachings of previous experience to the changed conditions, a procedure which success exacted, and by which it was generally secured.

The object with which the ensuing chapters on

training are written, is to enable those whose circumstances or location prevent their having recourse to a regular training establishment, to prepare the thoroughbred horse for his engagements on the flat, and to discover to them the practical methods by which, at least, they can ascertain whether, in the youngster, to which hope attributes the flattering tale of a distinguished career, they possess a mine of wealth, or only a costly plaything. To enable them to avoid the detriment which ensues from the absence of early education, or the employment of improper methods in training, either of which is a bar to success on the turf; and finally, it is hoped that even those who are professors of the art may find something in these pages which may prove useful to them in their practice. It has been truly said that "art is long, while life is short." We are all at school from the cradle to the grave, and there is no period of our lives, and no condition of progress in our professions, when we have not still something left to learn; while the author's experience has led him to the conclusion that those who read most are also the best trainers.

THE RACEHORSE.

HOW TO BUY, TRAIN, AND RUN HIM.

CHAPTER I.

PROCURING THE YEARLING.

Good judgment in buying rare—Rules for buyers—Prejudice against certain breeds to be discarded—Buy on shape and action, and with regard to the object in view—Qualities and soundness of sire and dam to be considered—Roarers and soft breeds to be avoided—The points of a yearling—Head and neck — Forehead — Barrel — Hindquarters — Colour — Action both walking and in the paddock—Condition—Examples of a successful application of rules.

SOMEBODY immortalized Mrs. Glasse by attributing to her a recipe for cooking a hare. "First catch your hare," she is represented as saying. The good lady never said anything of the kind; but fame is often acquired on as slender foundations. The owner and trainer must perforce follow the advice, wherever it came from. A yearling is not difficult to catch, providing you have the proper appliances, which in this case mean a taste for horseflesh and a pocketful of money. For hospitable breeders will invite you to their paddocks, and persuasive auctioneers will charm you in the sale room, having first lubricated the clasp of your pocket-book with champagne and other good things, so that if

the appliances are forthcoming, your great difficulty will be to refrain from buying, especially if you know nothing about yearlings. I have often remarked the difference in the methods employed in selling a good and a bad yearling. The latter is invested with all the attributes of equine excellence. On both sides he traces back to parentage of celebrity and worth, whose qualities were of such high order that it would appear as if the only difficulty they could have encountered was in losing a race; with blood in his veins to which that of the most lineal descendant of Adam is a mere puddle. True, he is on a small scale, but then, you must remember, one of the most celebrated mares on the turf was so small when a yearling, that on being sent home to her disgusted trainer he mistook her for a foal; a trifle straight on the forelegs, but some of the best animals were foaled that way; perhaps a little deficient in muscle and light in bone, but you are asked to remember that so-and-so was even lighter—and what a horse he turned out to be! If he has bad action, the attendant is instructed not to move him about too much or too fast. If he has good, he cannot display it too much. A grand yearling steps into the ring, tossing his head and scanning the crowd with the confidence of courage and power. You might expect to hear still higher encomiums, Pelion piled upon Ossa; nothing of the kind. "Now, gentlemen, this is lot ten; I need not say anything about him; you all know his sire and dam, and you have seen his full brother run this year. How much for this colt? Two thousand guineas? One thousand? Thank you, sir."

He wants no selling; there are a dozen purchasers eager to catch him, and pay double or treble his value for him, too; and talking would be a mere waste of time; praise, "gilding refined gold, or painting the lily." Thousands of yearlings are sold in the United States, in the United Kingdom, in Australasia, and on the continent of Europe, but how few earn winning brackets! An excellent judge of yearlings assured me

that he considered himself fortunate if two out of five he purchased proved to be winners at all: and how few good judges exist! Excellence is rare in this respect as in any other. The qualities of eye and judgment required to make a successful buyer are as rare, if not rarer, than those requisite to the achievement of success in any other branch of art. Like them they are susceptible of improvement, but I have not the slightest doubt that they are born with Man, as is the talent for painting or music. Lay down all the rules you like as a guide to the buyer, let them be approved by the most competent judgment and engraven on the memory, and yet one man will buy better than another. The preliminary advice I should give to a buyer is to discard all prejudice, if such is possible. Doctor Shorthouse, an eminent authority on breeding, held such a prejudice against the Blacklock blood, and abused it so consistently in his paper, that it is said the advent of "Galopin" nearly broke his heart. Some families produce, it is true, a larger number of winners than others. Like begets like in the main, but not necessarily in the individual, throughout all animated creation, the variations being greater as the scale rises; but it is no greater satisfaction to the owner of a worthless animal to know that he is of a winning family than to a man suffering from an incurable disease to know that he comes of a healthy one. In fact, human nature is so constituted that it is rather the reverse. A colt, well shaped, with good action, whose family is in the winning minority, should be purchased in preference to one of lesser qualifications derived from the most winning blood; that is, for racing; breeding is another matter, with which we are not now immediately concerned. Another consideration which should affect the buyer is the purpose for which he wants his horses; whether as money-making machines, to be got rid of when that end is accomplished; to be used afterward for breeding; or whether it is principally for pleasure, and the honour and glory of racing, as in the case of the late Lord

Derby, who spent half a lifetime trying to breed a winner of the great race which bears his name. If for the first, I have no hesitation in saying that horses which can win as two-year-olds are the most profitable. Their keep is less costly, most of them run generously at that age, and can be depended upon to run up to their private trials and over short courses; the odds against them are more liberal, especially in the commencement of their career, because they have not as yet become popular idols; secrets of the stable have been better preserved; owners of the animals that run against them are more sanguine than when repeated disappointments have sobered their expectations, and these backing their own freely, better odds are obtained. Notwithstanding the warnings of experience, buyers at remunerative prices can also generally be found for them at the end of their two-year-old career; for experience is not always a warning to the many. Breeders will often buy them eagerly, either desirous of reproducing the same class, or hopeful, by judicious crossing, of improving their lasting qualities. Of the second are all likely youngsters, containing fashionable strains of blood, who may gain credit at the stud, if they do not adorn the racecourse. Thirdly, colts and fillies by the best sires, out of the best mares, and likely to train on. These horses sell themselves as youngsters, many of them train on, can both stay and go fast, and are a crown of glory to their owners.

The question of soundness in sire and dam will enter largely into the calculations of the buyer, especially as regards soundness in wind.

Unsoundness from accident may be disregarded, but not that which proceeds from disease; in the latter category will be ranged roaring, whistling, bone and bog spavin, navicular, ring and side bones, contracted feet, and perhaps curbs, which proceed often from a hereditary form of hock, but in my opinion are seldom permanently detrimental to a racehorse. William Day classes thorough-pin as a serious unsoundness, but does

not say whether it is hereditary. Most trainers I have consulted do not agree with him; nevertheless his opinion should carry considerable weight. The worst case of thorough-pin I ever saw was in Marie Stuart, winner of the Oaks and Leger. When she ran in the Ascot Cup, with the best field of horses that ever started for that race, she did not appear to run unsound then, and afterwards stood training and ran well, especially in the Manchester Cup, for which she carried top weight, beaten only a neck. I regard thorough-pin more as a sign of overwork than as unsoundness,—something akin to windgalls. Roaring of a certain kind is hereditary. A remarkable instance came under my notice as an owner. A filly whom I purchased at Newmarket in October, and who had not run as a two-year-old, won in the spring five or six consecutive races as a three-year-old. I thought she was good enough to win the Oaks, for which she was entered, but kept her for the Cesarewitch, as she could both stay and go fast. As the year went on she went on improving; suddenly, within a fortnight, she turned a bad roarer. She had not suffered from cold or influenza or any cause supposed to produce roaring. Her brother, who ran second for the Two Thousand Guineas in the spring, went in the same way. She begot winners afterward—so did her dam; most, if not all, were roarers. It is true that roaring is not common in the United States, where the dryness of the climate seems less favourable to the disease. It is even stated that imported English roarers become sound in America. Where the disease is the result of paralysis of the muscles which dilate the larynx, it is incurable; and it appears to me that it is this paralysis, or the tendency to it, which is hereditary. Prince Charlie, however, imported by Mr. Swigert, who, as well as his dam and brothers, one excepted, were roarers, did not transmit that disease during his short service in America. I never considered the Prince a bad kind of roarer. A horse that could beat a Cambridgeshire winner like Peutêtre over a mile like a

common hack, and thus wind up an almost unbeaten four and five-year-old career, could not have been a bad roarer; and the disease might with him have been acquired and not inherited. Roaring is more prevalent among the largest horses, which is against the hereditary theory. Still, though a buyer, and especially a buyer for early racing, should not be altogether deterred by hereditary diseases in sire or dam, it may be reasserted that these should certainly enter into his calculations. But this will be treated of more fully hereafter. Families which are notably soft should be avoided; that is to say, those whose members, from some unknown cause, fail to fulfil the reasonable expectations of their owners, formed from private trials. Rogue and jade are terms applied to this sort; they are said to be deficient in courage. This fault is often attributable to internal conformation and to nervousness, which affects the lower animals as well as human beings. Having avoided these pitfalls, the buyer will consider the conformation of the colt. An intelligent head is a *sine quâ non*. The shape does not so much matter, except that the forehead should be broad, denoting volume of brain; the eyes far apart, prominent and observant. A pig, or sunken, eye denotes sullenness, intractability, and want of courage; a furtive eye, showing much of the white, denotes vice. Roman-nosed horses are often hardy and enduring, like their ancient human prototypes, whereas those whose frontal bone is concave are the reverse: but there is no unvarying law. The jaws should be wide beneath, so as to give room for the windpipe, which should be large and loose. The nostrils wide, and the muzzle not too small; a small mouth in man or horse denotes weakness of character. The lips should be firm and closed; a pendulous lip shows indecision and physical weakness, which is often its cause. The head should be set on at a proper angle to the neck, which between the axes of both should be about a hundred degrees. Setting on at a much lesser angle produces roaring; at a

greater angle, weakness and a bad mouth, which does not give and take to the rider's hand as it should do. The neck ought to be strong and muscular to sustain the weight of the head (in racing the neck tires first); it should not be too long, and the hand should feel it firm and substantial under the mane. This indicates a good constitution. It should swell out gradually to the head and shoulder, showing no very marked junction with the latter. The mane should be thin and silky. Shakespeare says: "Thin mane, thick tail, broad buttocks, tender hide;" and he is right. The shoulder should be oblique, and the scapula, or shoulder-blade, should extend far back to where it joins, or rather, is suspended, for there is no joint here, at the wither; it should also be long, giving an appearance of oblique length to the shoulder, which in this form is enabled to sustain the jar caused by the great stride and speed of the thoroughbred. With harness horses and others the shoulder is more upright, which gives rigidity at the expense of elasticity. This elasticity enables the horse to recover himself after the completion of the stride. The humerus, or lower shoulder-bone, must also be long, and set on to the shoulder-blade at a proper angle—about ninety degrees. This angle leaves the greatest freedom for extension and recovery of the fore legs, a problem which may be illustrated by a common practice in athletics: Put your toes to a line chalked upon the floor, take in the left hand a piece of chalk, and support your body with your right hand on the floor, then chalk a mark with your left as far as possible. Having done so, recover a perpendicular position without having moved the feet or the right hand. A few attempts will quickly show that if the right arm is extended much beyond a right angle to the body, you will be unable to recover the perpendicular; if at too acute an angle, you will be unable to chalk far. So with the shoulder of the racehorse. Equal power of extension and recovery are necessary to a long and uniform stride.

When the lower shoulder bone is long, the elbow is pushed backward, and this, coupled with the length of the shoulder-blade, gives to the fore hand of the colt, looking at it sideways, the large surface or size so much desired by connoisseurs, while an apparent smallness is the result of a conformation the reverse of the above. The skeleton described should be thickly covered with muscle, which gives an appearance of roundness to the angularities. The fore legs should be straight in their general conformation, and perpendicular, whereby the utility of the well-shaped shoulder is preserved. The radius, or bone of the fore arm, should be long, and the arm itself large, muscular, and full in the outline; the knee large, and broad in front, giving plenty of surface for the attachment of muscle, and, with the joints generally, should have an aspect of coarseness in the thoroughbred. The cannon bone should be short. Animals who have this bone shortest, coupled with the longest fore arm, are the speediest; this formation being most striking in the greyhound of all our domestic animals. The elbow should neither be turned in to the flank, nor out. If turned in, the legs are turned out and have to bear the shock of galloping in part laterally, while there is interference between it and the ribs. Such horses are generally bad walkers. If out, the toes are turned in, which is not so weak a form as the other, but detracts from the speed.

I have said that the leg should be straight; this is particularly the case below the knee to the fetlock. If the back outline of the leg is convex, what is called calf-kneed, it is a sure sign of weakness; such horses seldom stand training. The reverse of this shape is unsightly; nevertheless, horses so formed seldom break down. The leg should, with its tendon, appear broad and flat, and the latter, called the back sinew, or flexor tendon, should be clearly defined. This sinew should be quite straight; if it is pinched in, or tied below the knee, weakness is denoted. The fetlock, like the other joints, should be large, to facilitate the attachment of

muscle, and have a hard, clean look. Thence the pastern should descend at an angle to the perpendicular of forty-five degrees. A lesser angle would jar, and a greater weaken the structure. The pastern should be slender, clean, and hard-looking. The foot should be of good size, at the same angle as the pastern, and the horn smooth and without rings or streaks, which are sure indications of disease. The frog should be large, filling up the heel, and both it and the sole should be tough and strong, and the latter concave. Standing in front of the colt, the outline of the chest from the wither to the bottom of the breast should appear like a flattened oval, smaller at the wither end, and narrow compared with that of a horse used for any other purpose except racing. If the chest is too wide, and this is, perhaps, the greatest fault in a horse intended for racing, the forelegs will stand wide apart, and a great deal of daylight will be seen through them, which ought not to be. I have seldom seen a horse so formed that could gallop at all, and never one that could stay. The feet ought to come close together, an inch or so apart. The chest should be deep in proportion to width; horses so formed stay the best. A deep, narrow chest expands more readily, and is capable of more expansion in response to the action of the lungs, as will be explained more fully later on. As the chest should be narrow, so should the body behind the shoulders, whose muscles should swell out so as to keep the saddle in its place; at the same time the section through that part of the body should not sink inward suddenly to toward the lower part of the girth behind the elbow. The withers should be strong, not fine or "knifey." The former denotes strong muscular attachment of the shoulder cartilage to the spine, and a full development of the ligament by which the forehand is suspended thereto. A strong wither also tends to keep the saddle in its place. Looking again sideways at the horse, the chest should rise slightly toward the belly till at least eight inches from the elbow, when the lower outline should

fall very slightly; this formation indicates the place for the girth, and where girth measurements are taken. The more of the horse there is in front of the girth, the better will be the shoulder and forehand. The ribs should be long, and terminate about five inches from the hip. A horse so formed is termed "well ribbed up" and "long in the back rib," two desirable things, denoting strength and good feeding qualities. A wide gap there is a source of weakness; so is a short back rib. The latter is to a certain extent allowable with mares, but not with horses.

The hips should be wide and prominent, and the stride turned out. This gives the hind quarters free play, and prevents interference with the ribs. The horse so formed stands with his hocks close together.

The three principal bones of the hind quarters should have nearly the same relative position as those of the fore quarter, and, like these, must be long. The haunch bone, or Os Innominatum, composed of three parts—the illium, ischium, and pubis—unlike the shoulder bone, is firmly attached to the spine. The angle formed by it and the femur, or thigh bone, is, however, more obtuse than that between the humerus and shoulder blade, about 105 degrees. On the other hand, the angle formed by the femur and tibia, or second thigh bone, should be more acute than that formed by the corresponding bones in the fore quarter by about ten degrees, or somewhat less than 120 degrees. This formation, and that of the hind quarter generally, is, it will easily be perceived, better adapted for propulsion than the fore quarter, the general line being straighter in the one than in the other. The quarters should droop along the upper bone about forty-five degrees from the line of the backbone, and the line to the tail very much less; but this latter is an unimportant matter, a considerable droop giving, however, a rather common appearance, which is termed "goose rump," but does not affect a horse for good or evil. From the point of the hock to the fetlock, the leg should fall straight

and perpendicular; it must be broad and flat, with the flexor tendon clearly defined, as in the fore leg. The hock should be broad, coarse, bony, and clean; delicacy in appearance indicates weakness. If the posterior outline below the point is convex, curbs are indicated; if concave, weakness, as in fore legs. The fetlock should, like the other joints, be large, and both the pasterns and hoof may descend more perpendicularly than in the fore leg, while the hind feet will be smaller and shorter than the fore feet. Standing now behind the horse, the buttocks must be broad—the broader the better—and tapering to the hock, with the outer line generally convex, denoting muscular development in the thighs and second thighs, the shape resembling a peg-top; the inner thighs should be well filled up with muscle, the absence of which gives that appearance called "split up behind." Sometimes at the junction of the upper bone and spine there is a lump or rise, which to the unskilled eye appears unsightly, but in such cases the bone is well developed, and there is more room for attachment of muscle. This excrescence is sometimes termed "the bump of speed," because horses so formed are generally speedy, *Cæteris paribus*. The loin and top of the quarters should be arched across, a form denoting great muscular development, the absence of which renders the section of the back angular. As stated before, the hocks should be close together and the stifle joint turned out; and the pasterns and hind feet should be turned outward. Looking from behind, the hocks should present the same solid, bony appearance as when reviewed from the side. Looking again at the colt sideways, the line from the top of the quarters to the wither should be nearly horizontal, the wither slightly lower, especially in yearlings. The wither is apt to rise with age more than the quarter. I do not like a horse with high withers; the fore action is likely to be higher than is desirable, and horses so formed have seldom that daisy-cutting action so gratifying to the eyes of an

expert. Eclipse was very low before, and, I may add, went very wide behind, bringing his hind feet well outside his fore. In this respect many of our best race-horses resemble him. Finally, it may be said that the tail ought to be strong and thick. A weak tail denotes a weak constitution; so does a loose flaccid anus.

To the eye, educated by knowledge of anatomy and of the proper position of the bones forming the skeleton, the right conformation of the racehorse clothed in flesh, fat, and muscle, soon becomes familiar, and indeed this knowledge is necessary to arrive at a proper estimate of shape and form, with the action consequent to, if not inseparable, from these; just as it is required by the painter of the human figure, and without it he cannot faithfully idealize or represent symmetry and strength upon the canvas before him. In both cases the instructed eye presents to the mind a picture drawn from the best models of what ought to be, and compares with that the object immediately before it, either to approve or to condemn. As to colour, it is an old saying that no good horse is of a bad colour; but this, like many which have the reputation of age and wisdom, is manifestly untrue. That comparatively few horses of a bad colour have been successful on the turf no one with experience can deny; and the writer does not entertain any doubt but that those few would have been better animals had their colour been good. The most objectionable colours are those which are weak and washy of their kind, and where the extremities are lighter than the rest of the body. Thus, a very light bay or chestnut is apt to be of weak constitution, deficient in stamina, and when to this is added "mealy" legs, or legs lighter than the rest of the coat and a lighter coloured mane and tail, the evil is accentuated. "Black points" (that is, black legs, mane and tail) are preferable in a bay; and with these the feet are generally more sound, and the horn is more enduring, White legs and feet are objectionable, but not so much

as "mealy" ones; yet a colt should not be rejected on that score if otherwise well formed and of good action. Dark chestnut, bay, and grey, will be better than light shades of those colours. Blacks are very seldom seen, a few, as Saunterer, having been excellent. Roans are still more scarce, and I have never seen a good one of that colour. Some horses, like Strathconan, have a slight admixture of bay or chestnut hairs, but they are really greys. Browns, with bays and chestnuts, practically monopolize the turf; and the darker and more whole coloured they are, the better.

But a horse may be of the best colour and the best breed, and outwardly possess every contour that represents a model of speed and endurance, yet, like the possessor of all the virtues without charity, be worth nothing. The Athenian orator is said to have described the three chief attributes of eloquence as action, action, action; so, indeed, it is with the racehorse: without action, form, size, colour, ancestry, everything will be neutralized; with it they may in some measure be dispensed with. This is what is meant by the saying "Horses go in all shapes." It is action that makes them go; the want of it that makes them worthless. How can this quality be ascertained? Undoubtedly, any person who has been constantly observing a number of yearlings, raised perhaps under his care, ought to be able to tell with tolerable certainty which have good action and which have bad. But this is precisely the man who will not tell. If he is true to his employer he will keep his mouth shut, and he certainly will not depreciate the property entrusted to him by odious comparisons. A tip to a stud groom may sometimes procure information, but it is not to be depended on, and no honourable man would resort to such a proceeding before a sale. After it the case is different, but then the information loses in value.

The best yearling the writer ever owned was bought on his own judgment, afterwards confirmed by that of the stud groom, who sought him out after the sale and

informed him that the colt was superior to the rest in the paddock, and had the best action in galloping. That a pretty good judgment may be passed on the merit of a colt before he is broken or tried, may be inferred from the following: Thirty years ago the writer, who had two pointers being broken at a place about fifteen miles from where he was then staying, walked over one day, at the keeper's request, to see them work. On his return, he called at a pretty cottage some distance off the road to ask for a glass of water; and, being hospitably entertained with something better, as he was conversing with his entertainer, a clean-shaven man of about fifty, he noticed an excellent oil-painting of "Teddington," the winner of a previous Derby, hanging on the wall. A remark led to explanations, and he ascertained that his host was the stud groom of Sir Joseph Hawley, owner of the horse represented in the painting. An invitation to go around the paddocks followed; and while looking at the brood mares and their offspring, the conversation turned upon the coming Derby, which was less than a fortnight distant. In this race Sir Joseph had the favourite "Fitzroland," winner of the "2000 Guineas," and, as is usually the case, with winners of that race, he was at a short price. He had another horse entered, "Beadsman," by "Weatherbit." Discussing the chances of the first-named, the stud groom said: "I have never laid eyes on the colts since they left my charge nearly two years ago, but Beadsman always led Fitzroland in the paddock, and he looked to me then more like a Derby horse." Acting on this hint, the writer backed Beadsman at a long price, and remembers well the sensation created on the course when Wells, Sir Joseph's first jockey, was seen mounted on the second string, who came with a rattle in the betting, and won easily, Sir Joseph netting, it is said, an enormous stake. I believe that if buyers could spend a good deal of time looking at youngsters as they show their metal in the paddock, it would be well spent; but this can seldom be: breeders of yearlings do not like

buyers to be too inquisitive, nor do they care to see their youngsters rattled about. How, then, can the buyer obtain that guaranty of speed and galloping action which will justify him in nodding to the auctioneer? From the walk, I reply without hesitation. If a colt walks really well, he will always gallop; he will not necessarily be a stayer, but he can always go. The sale ring is by no means a good place to observe the walking capacity of a colt. Led around a small ring by a man who cannot walk fast himself, and who, perhaps, has orders not to lead fast, a colt seldom exhibits his capabilities in this respect. The very best place I know to judge of a yearling is Doncaster during the St. Leger week. There, five hundred or more yearlings are offered at auction during the four days. Each day the youngsters are led out for exercise in the paddocks attached to the sale rings, and an intending buyer can observe their action from every point of view. A colt that is likely to race will show great freedom in the use of his limbs, behind and before—what is termed "liberty of action." The colt that gets over the ground quickest has not necessarily the best action. Quick, jerky action often denotes speed, but only for a short distance; such rarely, if ever, prove stayers.

The writer once purchased a filly of this kind, described afterward in a sporting paper as "one of the fastest walkers ever led into a sale ring." She walked with a quick, nimble action I have seldom seen equalled. As a two-year-old she won seven or eight races right off the reel, but these were over the half-mile courses then in vogue. She could not win at five furlongs, and never did win when she had to compass that distance or beyond it, but she was like a rabbit from the slips. The colt in walking should reach out far with his fore legs and put his feet down firmly with a decided thud, and they should not dwell in the air before coming to the ground. The hind legs should be brought under him in the same manner, far in front of the spot vacated by the fore foot. This should be accompanied by flexibility

of the neck and body; the former should be carried low, and bend gracefully, and the tail should swing freely from side to side. The motion should be graceful. Grace of motion in the horse, as in man or woman, is the *propter hoc* of external and internal symmetry. I say internal, because the action of a body, to the eye well formed, may be let and hindered by the malformation of joints and muscles not visible. Fine external muscular development does not always carry with it freedom of action—very often the reverse, as may be seen in human beings. In the human subject, however, grace may be taught, may be acquired; but with the horse, who does not, so far as we know, study personal appearance, it results wholly from conformation. I have never found walking action, as a test, to fail in judging a number of yearlings. At the sale of Mr. Swigert's yearlings in Kentucky, in 1884, I picked out two colts and two fillies at the request of Colonel Bruce of *Turf, Field and Farm* (American), and an excellent judge of yearlings, and these proved to be the best out of about sixty sold. I was guided principally by their action, I knew nothing of their breeding, being then quite a stranger to American thoroughbreds. Five years later, at the request of the New York *Sporting World*, I inspected ninety-eight of the Rancho del Paso yearlings from California, and in an article written previous to the sale, selected forty-eight as likely to prove winners. All the subsequent winners, except one, and there were about twenty as far as I can recollect, came from those I had selected. In 1890, Mr. J. R. Keene, the owner of Foxhall, told me that since he owned the Cesarewitch and Cambridgeshire winners, he had bought a number of high-priced yearlings, paying from 400 to 1200 guineas for them, and that not one had won a race of any kind. He asked me to select ten yearlings for him at the various sales in progress. I selected nine, with the result that six proved to be winners as two-year-olds. Had the matter been left altogether in my hands I should have bought for him

"Yorkville Belle," the best filly of the year, and "Lamplighter," who will, I think, prove the best three-year-old colt, but I only marked the catalogues, and he or his son exercised their judgment. Had these nine horses been in good hands when they fulfilled their engagements, all but one would have been returned winners. The prices paid for these yearlings were low, averaging 160 guineas a head, Mr. Keene being at that time all for buying cheap, because many of the best horses in the States at that time had fetched low prices, and he had himself paid only 150 guineas, or thereabouts, for "Foxhall." In these cases I was guided principally by walking action. Of course I do not mean to say that conformation went for nothing; it goes for a great deal, but is, as I have said, worthless without action. In walking, a colt can be made to do his best; galloping in the paddock, he cannot, and frequently will not. If he would, this might be the best criterion. The yearling should be observed from before and from behind, to ascertain how he makes use of his limbs; whether he turns them in or out. A colt that turns out his fore feet is more likely to interfere, or strike one against the other, than one who turns them in; and turning in is more against speed than turning out. Horses that turn out their hind feet and legs a good deal are very often speedy. The hind legs are very seldom, if ever, turned inward. Perhaps I should have said before this that it will be well carefully to examine the yearlings in their boxes before studying their action. It is there that blemishes and incipient unsoundness can be most easily detected, and that notes should be made of any defects. Often, as every one who has had experience will remember, the colt appears quite a different animal in the box and out of it. Very often when you see him led out you will reconsider your opinion, favourably or otherwise. You will pardon his faults of shape for his action, or condemn his beauty for his want of action.

I remember to my cost buying a number of yearlings which I thought well of in the stable. The sale was

held in the open, in pouring rain ; umbrellas and mackintoshes were the order of the day, and there was no seeing the young ones move. It was a good, but an expensive lesson. And yet, after all that can be said and all that can be taught, there is in the buying of a yearling something that can never be communicated, something in his action that cannot be described—what the French call a "*Je ne sais quoi :*" and the perception of it lies in the man—is, like the gift of painting and music, born with him ; and in it lies, as in other arts, the true cause of success. To those who have given intelligent attention to these matters, this will not seem an extravagant assertion, and yet it must be observed that few members of the Anglo-Saxon race will concede their own ignorance where the horse is concerned, however ready they may be to admit it in other matters ; perhaps that is why you may hear more downright nonsense talked about horseflesh than about any other subject of common interest.

Before quitting this branch of the art, it may be well to remind my readers that perfect and natural formation must not be looked for in a yearling ; nay, indeed, it must be looked upon with suspicion. Colts and children that are too good-looking seldom fulfil the promise of their earlier days ; with the former, certainly, that symmetry which pleases the eye of the inexperienced is often a herald of little growth and improvement in the future ; and the development of the sweet by-and-by must, with horse-flesh at least, be gathered from the promise of the present and the experience of the past.

Breeders for sale, and the general public, love a fat horse, the former with good reason ; good judges do not. Like the aforesaid charity, fat covers a multitude of sins ; on the other hand, it certainly denotes a good constitution ; and if you see a lean yearling among a number of fat ones you may be sure that there is something wrong ; the colt is not a good feeder, or he may have been amiss. It may have been nothing serious,

but on the whole I prefer an animal that has had no early sorrows. Again, fat colts, when put into training, fall away; lean ones improve. Lord Falmouth, the most successful breeder in England, and who never bred for sale, sent his youngsters to the trainer anything but fat. I heard the latter say that they always improved with him from the start. Any one who bears all the above principles and particulars in mind, and who is capable of applying them practically, need never buy a yearling that is not capable of racing, unless of course he should be prevented by accident or disease. He may not win big races or in first-class company, but he will be able to gallop; what distance, the future, and to a great extent his parentage, will determine. One who properly applies the above information need never buy a colt that cannot gallop fast.

CHAPTER II.

STABLING.

Importance of stabling—Should be close to training-ground—Dry, with southern aspect—Well ventilated, lighted, and floored—Kinds of flooring—Admiral Rous on stabling—General description—Drainage—Stalls and boxes—Fittings—Temperature—Water and tanks—Straw and hay barn—Verandahs—Winnowing, chaff-cutting and slicing machines—Paddock—Forge — Accommodation for attendants — Importance of details.

HAVING procured the yearling, the next question for consideration is where to put him. That the matter of stabling is very important, and should receive earnest attention, becomes apparent when it is considered that it largely affects the welfare of the horse and his success upon the turf. It is not intended here to suggest elaborate plans for a racing stable. Excellent and well-considered designs will be found in works which treat of the horse in general, or the racehorse in particular. With a few alterations, the training establishment built by Mr. William Day at Woodyates, in Dorsetshire, and fully described in his book, "The Racehorse in Training," is a desirable model, and cannot very much be improved upon except in the matter of fittings and such like, wherein considerable ingenuity has been shown of late years. It will therefore be sufficient to indicate the general principles which should govern the construction of stables, more especially those relating to hygiene, and which can be adapted to structures now in use. In the construction and arrangement of stables, besides those sanitary precautions which are directed against

disease, it is desirable, if not absolutely essential, to study the comfort and convenience of boys and stablemen—of the general management, in fact. Proper dispositions in this respect, if they do not insure, tend at least to promote economy and to create contentment among those to whose care the horses are entrusted, which goes far to attain the desired result. If every facility exists for carrying on a business, there is always less grumbling and discontent among employés, the work is easier, and more cheerfully performed. Where these matters are duly considered and carefully provided for, a stable very inferior in design and construction will be better adapted for training purposes than one superior in these respects, where the former considerations have been neglected, or have received insufficient attention. Such an establishment will resemble one of those dwelling-houses familiar to many of us, neither picturesque nor pretending in its architectural proportions, but whose interior has become, from patient and careful study of the wants of the inmates, a synonym for comfort, convenience and salubrity. The stables should be close to the training ground, which, in wet or bad weather, will enable the horses and riders to do their work with a minimum of risk and inconvenience. They should be built on dry ground which has been properly drained, and if possible, in such a location that when horses are finishing their gallops and sweats, their heads may be turned homeward. It is very important, too, that they should have, if possible, a southern aspect. With the dwellings of men this desideratum has been recognized, if not always acted on. With the racehorse, the child of a southern sky, a southern aspect is still more desirable, and indeed the same rule applies generally to the animal and vegetable creation. Your garden, your kennel and your stable should have a sunny aspect, and the same obtains in the southern hemisphere, changing "Southern" to "Northern." The tenants of such establishments are stronger in their growth and less subject to disease. A racing-stable

should have both stalls and loose-boxes, and horses should be accustomed to stand in both, because otherwise, when necessity compels to do so, they will be restless in that to which they are unaccustomed. It would be a good plan to have some of the boxes convertible into stalls. All the door posts, with which the animals are liable to come in contact ought to be rounded off, which diminishes the chances of injury. I have seen horses severely hurt by contact with the sharp edges of door-jambs. If economy of space and money is no object, ceilings ought to be dispensed with. However well ventilated a stable or a room may be, a high one is preferable to a low one. Under other circumstances, however, the stables may be ceiled and the upper floor used for the storage of hay, oats, etc. Besides the disadvantage of a low roof to the boxes, this plan is, however, open to the objections that it is productive of noise and attracts vermin, unless the latter is removed by making the lofts vermin proof, as in the case of the stables of a friend of mine, which are made rat proof. The noise made at night by these little pests disturbs horses, and robs them of the rest which is indispensable to their welfare. The same objection applies to using lofts as sleeping apartments for attendants. If forage is kept above the horses it is also liable to become tainted by the foul air arising from the stables. Should the upper part of the buildings be used as suggested above, extracting air shafts must be placed at intervals and carried up to and above the roof, where they should be louvred or protected by cowls pivoted in such a way that the wind will not, by driving down the shaft, prevent the foul air from escaping. Whether there are ceilings or not, louvres should be placed in the roof. I need scarcely say, in reference to the above, that foul and heated air ascends, as may be easily tested after the stables have been occupied for some time, by raising the hand, or the head close to the ceiling. A point has been made of the fact that carbonic acid and oxide gases generated by animals is heavier than air, and therefore

should descend. In theory this may be true, but in practice it is not, for the gas mingles with the heated air and other impurities, and, becoming heated, rises.

Not one stable in a hundred is kept in a proper state of ventilation. If the means are provided the intention will generally be defeated by the ignorance and perversity of grooms who—and, I am sorry to say, some trainers also are not free from the imputation—generally detest pure air. Admiral Rous somewhat paradoxically remarked in giving evidence before a Parliamentary Commission twenty years ago, that he only knew of one stable in England fit to train in, and that one was in such a bad state of repair that it was impracticable to patch it up and exclude the air. A proper system of ventilation requires the admission of pure air to replace that which is foul and escapes through the roof. This should be admitted at a point well above the horses, at least eight feet from the ground, and windows will best serve the purpose. If admitted from below, close to the floor, draughts are created about the horses' heels, which play upon the animals when they lie down, chill their extremities and generate disease. The discomfort of this will be patent to any one who is so unfortunate as to live in a house with badly fitting doors, where draughts penetrate the bottom, make the feet cold, the head hot, and produce general derangement of the system. The human being, under these circumstances, can get up, walk about and warm his feet; the unfortunate horse is deprived of such means of relief, and consequently requires protection. The want of it is the principal cause of "cracked heels," which, though not a serious injury, interrupts a horse's training, and has been the cause of preventing many from fulfilling their engagements. The windows themselves ought to be hinged at the bottom, and should open inward; this causes the air to ascend, and in the case of wind prevents it from blowing down on the horses' backs. These windows, or rather the frames, had better be of iron, and should work on curved rachets, whereby the quantity of air

admitted can be easily regulated. You may see this form of window commonly used in churches, where people cannot conveniently regulate the draught of air. Light, and plenty of it, ought to be admitted from above the heads of the horses, the higher the better. There are few things more tiring to men and horses than glare, and blinds should be provided to intercept the rays of the sun in summer. The stable, in fine, should be well lighted, kept at a temperature of about 60 degrees when practicable, and no offensive smell should invade the nostrils of the visitor.

Loose boxes may be about fourteen feet by twelve, and twelve feet high; the doors four feet by eight. The walls preferably of plain brick, glazed brick or tiles. Wood harbours vermin. If wooden structures are used, the walls should be smooth and of hard wood, with no projections, and I recommend that they should be whitewashed to prevent disease. Stalls may be six feet wide by ten feet long, then horses cannot get at each other with their heels. In the partitions the boards should be laid horizontally; when thus laid they do not splinter so much from kicking; are less liable to damage, and also less liable to damage the horses. There ought to be an interval of at least half an inch between the floor and the partition, to prevent the lodgment of excretions, and to enable the floors to be thoroughly cleaned. As regards the latter, I disagree with most writers on this subject. Various kinds of flooring have various advocates. Brick, concrete, paving-stones, cobblestones and tiles are the forms chiefly recommended. These have their respective advantages. Generalizing, it may be said that the qualities most desirable in the floors of stables are as follows:—

1. Durability.
2. Suitability to the horses' feet.
3. Cleanliness.
4. Economy.

The last of these I should dismiss altogether from

consideration, the difference in cost being so small and the magnitude of interests affected so great. The same remark will apply in a lesser degree to the first. The chief objection to a floor that frequently requires repair or renewal is the inconvenience it occasions. The cost of repair is comparatively a small matter. The third is of much greater importance than these two. If a floor cannot be kept clean, if it becomes impregnated with the excrements of the animal to such an extent as to be deleterious to his health, it should surely be rejected. The most desirable in this respect of those named are well-laid brick, cement, and, if cemented, paving and tiles. Paving, I mean with large flagstones, in consequence of the leverage set up by the horse's weight and the size of the stones, is more liable to disturbance than any of the others, consequently, urine is apt to lodge between the joinings of the flags. Tiles and bricks are less liable to disturbance for the contrary reason. Cobblestones, advocated by many, are the most objectionable of those mentioned, on the score of cleanliness. The urine must necessarily sink between them, remain there and become a source of disease.

The second consideration, namely, suitability to the horses' feet, is in my opinion by far the most important. The quality of slipperiness, the presence of which often causes injury to horses in getting up or lying down or turning in the stalls or boxes, is found in cement and paving to a great extent, but rarely, if ever, in brick or tiles, while cobblestones are entirely free from it. Consequently, on that ground, I should prefer the last three. But there is one important consideration under this head, which, so far as I am aware, has entirely been overlooked by writers: that is, hardness. I really cannot understand why it has been so, and can only account for it by the fact that, as in most, if not all, branches of science, existing methods have been accepted as right, and especially those which save trouble. As a rule, a trainer or groom will advocate what saves him trouble or what causes his employer expense. To appreciate

the effect produced on the feet of horses by standing for a long time on hard substances, let me ask the reader to experiment by standing for hours on hard pavement and then on wood or softer flooring. Let him extend the experiment by having his shoes shod with the heavy iron brads or nails that are commonly used with shooting boots. I know myself that when, shod in this manner, I come across a piece of pavement I get off it as quickly as possible. What, then, must be the sensations of the horse, the result to the delicate organization of his feet, when to the comparatively unyielding horn is tacked a rim of iron, raising the frog and sole, his natural supports off the ground, and he is made to stand for many hours at a time on brick or stone? "A fellow-feeling makes us wondrous kind," and after such an experiment I shall expect the owner to sympathize with his horse, and perhaps with his pocket. My attention was first drawn to the effect of a soft floor by the extreme cleanness, hardness and coolness exhibited by the legs of hunters belonging to a dealer whom I knew in Ireland. These animals were kept in rough sheds and bedded on bog stuff or disintegrated peat, which is used for that purpose in the Emerald Isle, where it abounds. The peat was laid upon hard clay slightly raised to facilitate drainage. My friend assured me that he had given up standing his horses upon hard pavement for many years, having observed the difference it made in their legs, a matter of great importance to him as a dealer. While residing in the West Indies at Barbadoes, I owned a racehorse whose feet were shelly, and whose legs constantly filled or swelled in the stable. Having removed to Demerara, where the spongy nature of the soil necessitated raised and boarded floors in the stables, I was struck by the remarkable improvement in this horse's legs, and, indeed, my groom assured me that they were all better in this respect. Returning to a paved stable the old symptoms manifested themselves, leaving no room for doubt as to the advantage of a boarded floor in that particular case. Again, when

flies are troublesome horses knock and stamp their feet and legs about injuriously against hard floors, whereas on boards or clay the evil is mitigated, if not altogether removed. If any additional proof were needed to convince me of the value of wooden floors, it would be found in the fact that the Liverpool Tramway Company have entirely adopted them in view of their suitability to horses' legs and feet, and their superiority in this respect over hard pavement, a fact communicated to me recently by the manager of that company when I visited their stables. The objection I have to clay or earth is that it is damp and becomes saturated with excretions, and is not easy to keep clean. Otherwise I think it would be the best kind of floor. Boarded floors are not free from this objection, but I have observed that only a few of the boards become so saturated, and these are easily renewed and replaced if fixed with screws instead of nails. I do not see, indeed, why the centre of the floor should not be protected by rubber of a proper thickness, which might be occasionally removed and cleaned. Of course, paved or other hard floors might be treated in the same way, but it seems to me as if the rubber would be liable to wear out. Any slipperiness in the boards can be easily corrected by strewing a little sand every now and then. My opinions in regard to wooden versus earthen flooring have been confirmed by experience obtained on tracks around New York, where, as is the case everywhere in the States, earthen floors are the rule, and especially at Coney Island, where investigation left no doubt on my mind of the fact that horses who stood on boarded flooring were healthier than those that stood on earth, and were less subject to the so-called epidemic of cold and influenza, which in 1889, afflicted so many stables, and also to rheumatism which is very common in America, and I also found horses to be healthier where the earthen floors had been covered with peat, which is a disinfectant. Ordinary wood pavement, such as is used in the streets of London, laid on concrete and paved in with tar and gravel, would be better

for horses' feet than that now generally used. It is very easily repaired, and at very little expense, but the original cost is considerable. The saturated bricks could be easily removed and replaced. I think, however, that on the whole a boarded floor is better, cheaper and cleaner. The floors of the boxes and stalls may slope a little to the open gutter, which runs the length of the stable. This is necessary for drainage purposes. One inch in sixty or seventy will suffice. If even that slight slope could be dispensed with, all the better, for horses ought to stand on a level floor. In loose boxes, where the horse can shift his position, this slope is not of much importance. The open gutters or drains alluded to should be of stone or iron, the latter preferred, and should have a slope of at least one in eighty. They should have an outlet into a sewage tank, which can easily be cleaned and emptied. If the stable is long the gutters may fall both ways, and indeed this plan will generally be the best. There ought to be a passage at least six feet wide outside the stalls and boxes, and therein the saddles and bridles in use may be hung, as well as the buckets, bandages, sponges, etc., which should be on shelves above the horses and within easy reach of the men, so that all the operations connected with grooming and the care of horses may be carried on under cover. Here also the lamps should be placed on brackets. This passage ought to be of brick paving, and the gutter should run on the inner side, so that the horses will have a level surface to walk upon.

The whole floor of the building must be higher than the ground outside, and there ought to be none but surface drainage. In theory, underground drainage, with the stalls and boxes drained to traps in the centre, is excellent; in practice it is execrable. No care or attention that I have ever seen employed will prevent underground drains from becoming choked, or the consequent generation of miasmic gases and the attendant evils that arise therefrom. I have rarely, if ever, seen such stables healthy, and in most cases where drains and traps have

been adopted, they have soon been discarded for surface drains. The evil effect of an underground drainage system may not be immediately apparent; but rest assured that mephitic gases are surely, if slowly, sowing the germs of disease, and undermining the constitutions of the horses. Fortunate, indeed, would it be for owners if all trainers had this truth engraven on their minds—that foul air, whether from the above cause, or from imperfect ventilation, is insidiously but efficaciously combating the purpose for which horses are placed under their charge.

Care should be taken to prevent all communication by contact between the horses. By this precaution disease may be prevented from spreading if unfortunately it finds its way into a stable. For this purpose the partitions between the stalls and boxes should be sufficiently high. All the fittings, mangers, racks, etc., ought to be of iron. This is cleaner than wood, and does not harbour vermin. I recommend also that they should be removable, to enable them to be properly cleaned, and to prevent crib biting and injury to horses by lashing out and playing. The racks for hay ought to be low down, on the level of the manger; not, as was the old custom, high above the horses' heads, which obliged them to crane their necks to get at the forage, and allowed dust to get into their eyes. From this an economy of hay will also result.

The mangers should be furnished with fixed water buckets, drained off as basins are in a lavatory, and supplied by pipes in the same manner. They should be kept filled, by which means horses will drink when they like and not when they can, as we ourselves would wish to do, and thus they will consume much less water, in fact only as much as they really require. The other advantages of this plan are, protection from disease—each horse can only use his own bucket—and economy of labour. Water should be supplied from a tank fixed over the saddle room or some warm place, where the chill will be removed in cold weather. Preferably, the stable, as

stated before, should face the south, or the south and east. It may with advantage occupy two sides of a square, the other two being inclosed with high paling and occupied by sheds and buildings used for forage, harness, saddle room, etc., and by the dwellings of the employés, the trainer and his staff. The inclosure ought to be sufficiently large to enable horses to take walking exercise therein, when such is considered desirable, from policy or for other reasons. There should be one or two loose boxes opening to the exterior of the inclosure, in order to isolate any cases of contagious disease. When the possible result of the spread of disease in a stable is duly considered, no precaution against it can be deemed unnecessary.

A harness room is an indispensable requisite to a racing stable. There the spare saddles, bridles, clothing, etc., not in use ought to be stored, and under lock and key the weighted saddles and saddle cloths should be kept by the trainer.

The inflammable nature of hay and straw, and of wooden buildings, if the stable is of that material, makes it desirable to take the utmost precautions against fire. Electric light at once suggests itself, but as this will seldom be available, the use of that most easily under command is recommended. Candles in locked and inclosed lanterns, with horn or mica windows, are perhaps the best. Kerosene oil should on no account be employed; the danger attending its use is too obvious to require comment. The lanterns should be fixed and irremovable, except one or two, which should only be intrusted to steady hands. If the walls of the stable are of wood, all the parts about the lights ought to be protected by tin or some uninflammable substance. In each stable proper arrangements should be made so that one of the lads can sleep there at night. This precaution is useful in case a horse gets cast in his stall or box, or any accident happens to him during the night.

Arrangements may be provided for heating the stable

in very cold weather. This would be attended with some danger and difficulty in wooden stables. Of course this necessity will not arise except in high latitudes or a very severe climate.

The eaves of the stable ought to be guttered. By this means the drip, which causes damp and disturbs horses at night, will be prevented, and a supply of pure water can be stored for the use of horses and for other purposes ; the tank should be of sufficient size to contain a large supply. If raised above the level of the mangers a continuous flow of water for the horses can be obtained. Even if well water is used it should be led up into tanks, both for the purpose of being warmed and to facilitate stable operations. The economy of labour thus attained will be sufficient to enable the trainer of twenty horses to dispense with the services of at least one stableman. In addition to this, the water pipes should be so arranged, that with the addition of a flexible hose any part of the stable may be thoroughly washed and cleaned. It is perhaps needless to say that all the pipes should be protected from the effects of frost, and this will be sufficiently attained by burying them in the ground when they pass through the open, and laying the remainder inside the stables.

In one of the lofts there should be a winnowing machine to clear the oats of dust, and the latter should be discharged into a bin on the ground floor, where they can be served out in the proper proportions to the horses. A small machine for splitting beans will also be required, and when passed through it the beans may be treated in the same manner. There must also be bins to hold the bran, oatmeal and chaff, for which latter a chaff-cutting machine will be required. A straw barn is an indispensable requirement of a racing stable, and while the straw is protected from wet, the barn must be thoroughly ventilated to keep it dry, for if the straw contracts moisture, the result will be very injurious to the horses. A similar barn may be provided for hay, or the loft of the straw barn, provided with a

shoot, will answer the purpose. Carrots, parsnips and turnips must be kept spread out on a floor, or they will rot, and a slicer should be provided for cutting them up.

It will always be desirable, if possible, to have a private paddock well fenced, and a few acres in extent where horses can do slow work if required, or be turned out if necessary.

A small forge and shoeing smith's shop is a desirable appendage to a racing stable, and if there is not full employment for one man, his attendance ought to be insured during certain hours of the day, say before exercise in the morning and after it in the afternoon. The loss of time and the inconvenience will be found very great if it is necessary to send every horse that has a shoe loose or has lost a nail or even requires to be shod, to a public forge where he may have to await his turn, and perhaps contracts a cold, or disease, by contagion. Prevention is easy, cheap and sure; cure uncertain, expensive and difficult.

When the weather is apt to be very hot, those sides of the stable exposed to the sun ought to be protected by verandahs. These need be only very light in structure and will add little to the expense of construction, compared to what they will save in value of the horses' services. Recurring to the interior, I am decidedly in favour of sliding doors everywhere. With them horses are less liable to injury than with those on hinges. They ought to be hung on runners at the top and not at the bottom; in the latter case they become choked with rubbish and will not work.

I further recommend that the stables be arranged so that the stalls and loose boxes are divided into lots of four, each lot being separated by a sliding door. This will facilitate the separation of mares from horses, which should be strictly enforced. It will add also to the comfort of the animals by guarding against a large number being unnecessarily disturbed.

Finally, care and attention should be bestowed on

the sleeping apartments and rooms allotted to the attendants, which should be made as comfortable as the circumstances will allow. The latter ought, besides their bed-rooms, to be provided with sitting-rooms and every convenience in moderation which is found in dwelling-houses.

It may, perhaps, appear to some that many of the suggestions I have made, or, at least, that a few of them, are trivial and unimportant, but I think common sense and practical experience will convince most people that they are not so. Comfort and convenience, added to tact and order, are the oil which makes the machine work smoothly, and without which unnecessary friction occurs that obstructs its working, and unless I am very much mistaken, unless human nature is a different stuff from what I have understood it to be, the employés of a well-arranged well-ordered racing establishment will take a pride in the concern which will go far to achieve success.

CHAPTER III.

FOOD.

Importance of using the best—Improvement due to food—Qualities of food—Baron Liebig—Formation of blood and muscular fibre—Nutritive value of oats and hay—Good and bad oats—Description of good oats—Kiln-dried oats—Chaff-crushed oats—Carrots, beans, parsnips, turnips—Green stuff—Indian corn—Effect of good and inferior food on horses—Linseed and its uses.

IT is unnecessary, I think, to dilate upon the importance of supplying the best kind of food to the horse in training. When the magnitude and importance of the issues involved are fully considered, it will be admitted that so-called economy in this respect is truly a wilful and wasteful form of expenditure. If the racehorse is not supplied with the best kind of food that money can buy, that enterprise can obtain, and experience justify, his chances of winning are as much vitiated as if many pounds extra were put on to his back—in fact he is, to use a familiar phrase, heavily handicapped. If two great railroads entered in a competition of speed, or the greyhounds of rival Atlantic companies contested the palm of their superiority on the ocean, the policy or carelessness which supplied their engines with coal of inferior quality, would not be one whit less reprehensible, or tend in a less degree to diminish the chances of success, than would the neglect or folly which supplied horses in training with inferior food. The experience of centuries has happily left us no doubt on the kind of food required for a racehorse; it is the quality of that established kind which is now

immediately in question. The enormous improvement which during more than twenty generations has separated the Anglo-Arabian from his progenitor of the desert was commented on in the introduction to this work. How much of this is due to superior food it would be difficult to exaggerate. Note the vast change that takes place visibly in animals when removed from poor to rich feeding grounds, and then estimate the effect that may be realized by an unbroken continuity of good feeding during the generations that have elapsed since the time when Captain Byerly rode one of the celebrated progenitors of the thoroughbred in King William's wars, twenty-five years before Darley's Arabian got Flying Childers, and about the same time before Lord Godolphin's Arabian was foaled.

Cecil tells us that the best method of ascertaining the qualities of food, and their effect upon the growth and development of animals, is to consult those authors who have made those researches their particular study, and to compare the result of daily experience with the knowledge thus acquired. By these means the trainer can decide what variety or change of food is required under the varied conditions of time, place and idiosyncrasy of the horse, and one of the most prevailing causes of success or failure in his management is the judicious or injudicious selection of his food. Baron Liebig writes:

"If we hold that the increase of mass in the animal body, the development of its organs, and the supply of waste, all are dependent on the blood, that is, on the ingredients of the blood, then only those substances can be called nutritious or considered as food, which are capable of conversion into blood. To determine, therefore, what substances are capable of affording nourishment, it is only necessary to ascertain the composition of the food and compare it with the ingredients of the blood.

"Two substances require special consideration as the chief ingredients of the blood; one of these separates immediately from the blood when withdrawn from

circulation. It is well known that, in this case, blood coagulates and separates into a yellowish liquid—the serum of the blood, and a gelatinous mass which adheres to a rod or stick in soft, elastic fibres when coagulating blood is quickly stirred. This latter is the fibrine of the blood, which is identical in all its properties with the muscular fibre when the latter is purified from all foreign matter.

"The second principal ingredient of the blood is contained in the serum, and gives to this liquid all the properties of the white of eggs, with which it is identical. When heated it coagulates into a white elastic mass, and the coagulating surface is called albumen.

"Chemical analysis has led to the remarkable result that fibrine and albumen contain the same organic elements united in the same proportions, so that two analyses, one of albumen, the other of fibrine, do not differ more than two of fibrine or two of albumen, respectively, do in the composition of one hundred parts.

"Both albumen and fibrine, in the process of nutrition, are capable of being converted into muscular fibre, and muscular fibre is capable of being converted into blood. These facts have long been established by physiologists, and chemistry has merely proved that these metamorphoses can be accomplished under the influence of a certain force without the aid of a third substance, or of its elements, and without the addition of any foreign element or the separation of any element previously present in their substances.

"Those vegetable principles, which, in animals, are used to form blood, contain the chief constituents of blood, fibrine and albumen ready formed, as regards their composition. All plants besides contain a certain quantity of iron, which reappears in the colouring matter of the blood. Vegetable fibrine and animal fibrine hardly differ, even in form. If these principles be wanting in food the nutrition of the animal is arrested, and when they are present the graminivorous animal obtains in its food the very same principles

on the presence of which the carnivorous animal depends."

From what has been said, it follows that the development of the animal organism and its growth are dependent on certain principles identical with the chief constituents of the blood. Liebig and Boussingalt give chemical analyses of the several vegetables affording most nourishment to horses and other animals, together with the requirements they supply, from which it appears that those which abound most in nitrogen are the most nutritive, oats containing 5 per cent. and hay 3 per cent. of the latter, yet both are necessary to the racehorse in certain proportions. Chemical analysis is not, however, strictly a measure, but rather an indication of the value of foods to particular animals. It does not follow that those having the greatest abundance of nutritive matter are necessarily the best. Digestibility, readiness of assimilation, the absence of heating qualities, are second in importance only to nutritious ingredients, and inseparable from them in estimating the value of food. Chemistry is valuable, but must be tempered by experience. It may here be remarked that nature does not with impunity tolerate food taken in too highly concentrated a form, that is, with more than sufficient of the blood-producing principles. Excess in this particular strains or overtasks the digestive organs, produces disease, and requires to be corrected by antidotes, or in other words physic. This is so with all animals, although in the case of the carnivorous, more highly concentrated food may be taken than in that of the graminivorous, and is indeed requisite.

The experience of centuries, preceding, confirming, and confirmed by the physiological researches of eminent men, has decided that oats, and hay or grass, are the best and most nutritious foods for horses generally, and the first two especially for those in strong work. As a support to vitality, and as "brainy" and muscle-producing food the first named has received full and well merited recognition. Dr. Johnson satiri-

cally defined oats as "food for horses in England and for men in Scotland," and I think it would be difficult to find any race which can hold its own better than the votaries of the Thistle, whose motto, *Nemo me impune lacessit*, has seldom been more appropriately applied, either as regards the plant or the people. The nutritive qualities of oatmeal are indeed superior to those of flour and any other cereal. In Scotland, too, following the rule that cereals grow best at their northern limits, oats attain the maximum weight and the greatest perfection, weighing in some cases forty-nine pounds to the bushel.

Experiment has shown that the husk or non-nutritive part of oats weighs from eighteen to twenty-one pounds to the bushel. In the United Kingdom oats varies from thirty-two to forty-nine pounds. Fitzwygram, in his book on the horse, characterizes oats from forty-two to forty-nine as good; thirty-nine to forty-one, fair, and thirty-two as very inferior. The Government contract is thirty-eight pounds to the bushel. Assuming that twenty pounds in the bushel is husk, and, therefore, non-nutritive, practically, and that good oats weigh forty-four pounds and bad oats thirty-two, a horse derives twenty-four pounds of nourishing food from the former, and only twelve from the latter; yet I have seen grain that was barely thirty-two pounds, what Fitzwygram calls "very inferior," fed to racehorses in the United States. No good horsemaster in England would give it to his hack, let alone his racehorse or hunter. Remembering, too, that the stomach of the horse is small, that he cannot eat at a feed more than four to six pounds, and, therefore, cannot by increasing the bulk compensate for inferiority in quality, the paramount importance of feeding good oats to racehorses is emphasized. Under no circumstances would I feed oats weighing less than forty pounds to racehorses. Some kinds have thinner husk than others. This superiority is claimed by William Day for black and by Fitzwygram for white oats. I suspect both

kinds vary in this respect with soil and locality. Other things being the same, one colour is as good as the other.

Oats should be clean, dry, sound, plump, full of flour and rattle like dried peas. Good oats have no smell unless in fresh samples, when they savour slightly of earth. Before being fed to the horse, they should be cleaned and winnowed to get all the dust out of them. They should never be used when kiln dried, which is sometimes done to preserve and whiten them. These are less nourishing, and cause diabetes. To horses that bolt their food and do not masticate it thoroughly, chaff, or hay cut up fine may be given in each feed, a good handful at a time. Clover hay treated in the same manner, answers the purpose, and is an agreeable change. Light feeding horses will often eat their oats the better for it. The same may be said of carrots finely chopped, about half a pound to a feed, or even less, as a relish. Horses are exceedingly fond of carrots, and will frequently be tempted by a feed so flavoured when they would not finish a plain one. Nevertheless, in large quantities they are not recommended, being apt to produce eruptive blotches on the skin, difficult to eradicate, and indicating that much of this food is injurious.

I have seldom seen bruised or crushed oats given to racehorses, but think the omission is not creditable to trainers in general. Anyone who examines the dung of certain horses will perceive that oats are frequently passed whole, often in considerable quantities, the animal of course deriving no benefit from their consumption. In such cases any process which does not destroy the nutriment of the grain, and yet enables the horse to derive the full nourishment it contains, should be welcomed. That crushing accomplishes this the writer has had practical demonstration, not only in the disappearance of unassimilated grains from the dung, but in manifest improvement of the animal's condition, which is also accompanied by economy of food, calcu-

lated by Cecil at twenty-five per cent., which estimate, however, I think is excessive. The labour of crushing may slightly offset this economy, but with the racehorse, however, economy of food is not an important consideration, but rather the economy of his frame, digestive powers and vitality. If I found that any racehorse under my charge thoroughly masticated his oats, on the principle of leaving well alone, I should not supply them to him crushed—though I should do so to all horses that did not. An impression prevails among the opponents of crushing that the process of mastication is not carried on to the same desirable extent as when uncrushed oats are used. My experience tells me the reverse. I am sure that the food is more thoroughly impregnated with saliva when the oats are crushed; in this form impregnation is necessary to enable the horse to swallow the food, which he can do unmasticated much more easily when the oats are supplied in their natural state. An ordinary hand crushing machine, the capacity regulated by the number of horses, will suffice. In larger stables horse power may be employed. It is right to remark that if the use of crushed oats is established in a stable, it must be continued or the lapse from it will be injurious; also that it is more bulky and does not keep as well as uncrushed grain, neither of which, however, need neutralize its advantages if it is crushed as required.

Oats should not be given to horses wetted, as is often done. This facilitates the bolting of unmasticated grains, diminishes the quantity of oxygen and saliva used and necessary to render the food soluble, and introduces a mass of comparatively insoluble food into the stomach. The digestive powers of the gastric juice, which is the most dissolvent liquid known, is diminished by introducing water with the food, or immediately before or after feeding.

Mixed with oats, split beans—which are more nutritious than oats, astringent and heating—a double handful with each feed—may be given with advantage to deli-

cate, light-feeding horses. These are often irritable in their constitution, and frequently relaxed in their bowels from nervousness and excitement. Beans rectify the internal laxity, tempt the appetite, and increase muscular development. In large quantities they produce thirst and costiveness. Gross-feeding horses, who eat from fifteen to eighteen pounds daily, are better without them, except on rare occasions when heavy calls have been made on the system. White peas are often given for the same purpose as beans, but they are inferior to the latter, and I do not recommend them.

Bran given periodically and occasionally, according to the judgment of the trainer, in mashes made with boiling water poured thereon and allowed to cool, is recommended as a laxative. Bran thus treated is not devoid of nutritious qualities. By the action of boiling water a mucilage is created which cannot be concocted in the stomach of the animal. Bran should be fresh and sweet. Its laxative action is caused by the mechanical friction of the grains on the mucous membrane. It should not be given dry or mixed with oats or moistened with cold water.

Parsnips and swede turnips given occasionally in small quantities raw are often a pleasant change of food for horses, and may be given to tempt them at any time when they are off their feed, either boiled or raw, with good effect, so may also green stuff, such as lucerne and vetches, as will be explained hereafter. Observing the wonderfully good effect produced upon the mules and horses, most of them of American growth, in the West Indies, by the use of molasses during the sugar crop season, the writer has given it in water to racehorses in Barbadoes and elsewhere with satisfactory results.

Indian corn is very inferior to oats as a producer of muscle, notwithstanding that it is rich in nitrogenous matter, hydrocarbons, starch and oil. It produces fat and is very heating. It should never be given to the

racehorse in training, or indeed I think at any part of his career.

I question very much whether the fact of the thoroughbred having been raised on corn and inferior oats in the United States has not, among other causes, occasioned the necessity of importing English horses to improve or keep up the breed. If, as is stated by competent authorities, and which we have no reason to doubt, a dry climate is more suitable to the thoroughbred than a damp one, as shown by his comparative immunity from disease over here, and America has the advantage of greater scope of ground and fresher soil for breeding, what other important condition can produce the effect of deterioration in the powers of the animal which is indicated by the performances of the produce of imported stock and their immediate descendants, as well as by other facts patent to those thoroughly conversant with the form of racehorses on both sides of the Atlantic?

Linseed or flaxseed is an admirable adjunct to the bill of fare, and no stable should be without it. It must be used in small quantities, either steeped in water for forty-eight hours, or boiled till it forms a thick, ropy fluid and mixed with mashes, oats, etc. It imparts a gloss to the coat, which is in itself a sign of health.

Next to oats, hay is the staple food for the racehorse, and the most important; at the same time it is more difficult to procure of good quality, partly on account of its bulk, which militates against transport, and partly because it is more subject to deterioration from the effects of weather and harvesting. The quality is also more difficult of detection. The quality of hay as nutritious food depends very much upon the quality of the land on which it is grown. At Woodyates, where I trained some horses in the stabling formerly occupied by William Day, there was no good hay procurable within a distance of sixteen miles, and what I used came from Blackmoor Vale, where the soil was excellent. The light down land, which extended for many miles

around, though suitable for sheep, and capable, with plenty of manure, of growing fine crops of wheat and other farm produce, could grow no good hay. I accepted this fact as the experience of the above-mentioned trainer, who had lived there thirty years; and he informed me that when he occasionally was obliged to use the hay grown in the surrounding district the effect was visible by the horses falling off in condition. I have no reason to doubt the accuracy of his statement, because I have had the same experience elsewhere, and, as every farmer knows, the transfer of stock from rich land to poor is accompanied by a like result, and *vice versâ*. Good and bad seasons will also affect the nutritive qualities of hay as of other produce. Sound, dry, upland pasture allowed to meadow makes the best hay. It is far superior to the ranker grasses grown in flat, marshy land, however well drained that may be, or however luxuriant the crop. The nutritive value of hay is enhanced when derived from a large variety of grasses, instead of a few, and also when that variety is made up of the best kinds. In the United Kingdom, those most esteemed are the white clover, which is found everywhere; rye grass (solum perenne), meadow fescue (Festuca Pratensis), meadow foxtail (alopecurus pretensis), crested dogtail (cynosurus cristatus), meadow catstail or timothy (phleum pratense), cocksfoot (dactylis glomerata), meadow smooth grass (poa pretensis), which I take to be blue grass. This last is in England considered to be inferior in nutriment, but unquestionably it stands, if not at the head, in the first rank in America, and I may here remark that a gentleman from the Province of Ontario, in Canada, told me it grew there better than in Kentucky, was more lasting, and that thousands of bushels of the seed were exported from the former place to the latter. I have had no opportunity of verifying this information, but consider it not improbable on the "Northern limit" theory. Red clover hay is nutritive and puts on flesh, but is bad for wind and condition; and mixed hay is better without

sweet scented vernal, which gives that delicious smell we often find in hay, but has little nutriment. If meadowed pasture hay cannot be procured, then the most available of the above grasses reared from seed should be used. This is a matter where the judgment must be guided by local experience, which, after all, is the only sure test. Pasture hay should be moderately fine, somewhat hard, and one year old; unheated and with a green tinge. All hay should be cut early in the season before the seed has matured; it then contains more nourishment. Needless to say, it should be well saved. A sweet smell is no object. That comes from sweet-smelling grasses, as vernal, and horses will often reject such hay for that which is nearly scentless. A variety of grasses is recommended on the ground that experiment has shown its value, and also that the same plot of land will support more life when occupied by divers forms.

While on this topic I think it advisable to quote an extract from the report of the British Consul-General in New York on the dairy farming of that State. The extract is from a report made by a large farmer in that district to the State Dairymen's Association.

"The dairy farmers pay a great deal more attention than they formerly did to the seeding of their meadow and pasture lands. It was found scarcely possible to make a permanent meadow with timothy only, yet, with the exception of clover, it was almost the only seed used until, with the information acquired from the State and local agricultural societies, the farmers were able to select intelligently the seeds best adapted to the soil and climate. In many parts of the State there are meadows yielding over three tons of hay to the acre, which under timothy barley produced one ton, with little or no aftermath for the autumn. Experiments have shown that the mixing with timothy a variety of good, hardy, succulent grasses that will ripen, or nearly so, with it, is the best method of insuring a good crop and a permanent meadow, while under timothy alone, there is the change

of upheaval by frost or destruction by heat to such an extent as to require an annual re-seeding. A well-known agriculturist writes in connection with this: Almost all distinguished writers on grasses in this country follow the lead of English authorities, and recommend in their mixtures of grasses and forage plants which will not ripen uniformly with our staple grass, timothy, while others will not stand the winters of central New York. In meadow mixtures, even our highest authorities recommend the famous ray grass, or what is known in England as perennial rye grass (lolium perenne), which is to British agriculture what timothy is to the American farmer, the staple grass. There are many bales of the seed of this grass imported every year into this country, and the seed is extensively and indiscriminately used in meadow mixtures all over the country. Until better instructed, I must say that perennial rye grass is good for nothing in northern and central New York. Almost all writers on the grasses in this country conclude their essays or books with a formula of meadow grasses for the whole Northern States, regardless of the difference of climate. Some writers advocate a score or more of grasses to grow with timothy, conspicuous among which are the two large valuable and very early varieties, the orchard grass (dactylis glomerata) and the meadow oat grass, which are altogether too early to grow with timothy; but when these two, the oat grass and the orchard grass, constitute a meadow in equal proportions, no combination can be more profitable to the dairy farmer, either for early hay, or afterward, for soiling or late pasturing. I am reluctantly led to the conclusion that there are but few grasses adapted to our meadows. I mean by this that there are but few that will stand the climate and ripen evenly together, making a good uniform sward with our timothy. I name such as my own observations and actual test, on bleak uplands and in intervals, have shown to be by their time of ripening, hardiness, structure and average altitude, adapted to our soils, and to grow with timothy and

clover: rough stalk, foul meadow, yellow oat, Italian rye, tall fescue, meadow fescue and red top. If the meadow is moist, then fescue or bromus grass and alsike may be introduced. The grasses above named are most of them good, not only for meadow, but for pasture, after one or two mowings.

"I will now name separate mixtures for meadow and also for pasture such as I know have been productive of the very best results. For an average meadow, per acre: A mixture consisting of twelve pounds of timothy, five pounds of Italian rye grass, five pounds of meadow fescue or tall fescue, four pounds of red top, three pounds of rough-stalked meadow grass, six pounds of medium clover. As before stated, if the meadow is moist, bromus or alsike may be introduced, the red top increased and the fescue and clover lessened. For a permanent pasture per acre: five pounds Kentucky blue grass, five pounds meadow oat grass, five pounds of orchard grass, five pounds of meadow fescue, five pounds of red top, two pounds of sweet vernal, two pounds of Pacy's dwarf rye grass, and if not natural to the land, two pounds of white clover."

On comparison of the eight grasses last enumerated with the same number included in the list I advocate, it will be seen that there is not so much difference between the two, and certainly not so much as might be expected from the variations of soil and climate. One list includes timothy, the other sweet vernal, both of which are also discarded, vernal for the reason that it is low in nutrition, timothy because it ripens at a different time. It appears, too, that pasture of this kind, and consequently hay made from it, is equally suitable to horses and cattle. I may add that the importance of a good kind of pasture in dairy farming emphasizes that which I have attached to the quality of the hay which is fed to horses.

Salt should always be put within reach of the racehorse. Common table-salt is better than rock-salt.

CHAPTER IV.

WATER.

Importance of water—Mineral water—Effect of lime-water—Mr. Hinds, V.S., on water—Chalk used in water—Rain or river water the best—Change of water affects horses—Proper temperature.

WATER has a very important influence on the health and condition of horses, admitting, however, that the constitution may become accustomed to, and through custom may require, a kind of water which under other circumstances might be prejudicial to health. About 80 per cent. of the blood is water, and this fact alone ought to be a sufficient evidence of the value of a supply of good water. When it is considered, too, that water, besides being absorbed into the blood, saturates the food, and comes into contact with the digestive and vital organs, permeates the body, being given off from it before assimilation through the pores of the skin in the form of sweat, no further evidence is necessary to prove how careful we should be as to our water supply.

Dr. Johnson, in his "Economy of Health," says that one grain of mineral substance in a mineral water is equal to twenty grains prepared by a chemist. If this be anywhere near the truth, a knowledge of the constituents of available water supply should be one of the most valuable pieces of information in the possession of a trainer. It is well known that horses and cattle grown upon limestone soil—that is, where the subsoil is limestone—are larger and finer than those grown elsewhere; and, to remedy the defect in other soils, the farmer has to lime his pasture. No doubt the increase of size

alluded to is attributable to the presence of material for bones, composed principally of phosphate and carbonate of lime, which affords greater development to the skeleton. In the little island of St. Kitts the only lime to be found in appreciable quantities is on a solitary limestone rock, where the old barracks are situated. The writer had occasion to notice that, whereas the land snails elsewhere on the island were very diminutive, on the rock in question, though of exactly the same species, they attained considerable size. It is also well known that where the soil is deficient in lime men are deficient in stature, and *vice versâ*.

Not only is lime necessary to develop the growth of animals, but it is also required to supply the waste of bone in the system. I have seen it stated on good authority that the consumption of a certain quantity of lime will arrest the decay of teeth in human beings, and I have no difficulty in believing this to be true. It must not be inferred from the above that I think it absolutely necessary that water impregnated with lime should be served to horses. The supply required they will probably derive from the hay they consume, and I should certainly prefer that grown on limestone soil. I myself always supply a piece of chalk or carbonate of lime to each horse, and generally find that he will lick it. Mr. Hinds, V.S., the author of "Veterinary Surgery," in another book called "The Groom's Oracle," published in 1830, says:

"We may divide all water into the hard and the soft kinds; the first mentioned rising from a stone or gravel substratum, is commonly drawn from the well, and drank upon the spot; it is the prolific harbinger of internal inflammatory complaints and of tubercles on the lungs, the liver, etc.; and of encysted tumours on the mesentery of fat and idle horses, causing strangulation of the gut. We can detect this water by making a lather of soap with it, which curdles if the water is hard; whereas, if not so, the soap dissolves equally and impregnates alike the whole of the water. Indeed, all

water is thus impregnated with some foreign substance or other. As a corrective, let it be procured a long time before required for use, and kept in a tank or cistern exposed to the sun. Give less at a time and oftener, when the obnoxious kinds cannot be avoided. I am convinced that many a horse has lost his race in a distant part of the country through not being inured to a certain kind of water that is inoffensive enough in itself. The chalky water of Kent, in parts of Gloucestershire below Bath, and along by Basingstoke to Winchester, is that which most completely belies its first disgusting appearance. I am not certain, but it may possess a salutary effect on the constitution of some horses, upon the same principle as that applied to lime water, of the nature whereof it partakes: solvent of stone, destructive of worms, absorbent of bile, I apprehend a better corrector of hard water than chalk or whitening cannot be employed artificially when required."

From the foregoing, which accords with my own experience, it appears that chalk is valuable either as a constituent or corrective of water, more probably as both. It is an ingredient which can always be added, and I have no doubt horses will be the better for it. The definitions, hard and soft, applied to water seem to me rather loose and indefinite, and if the former includes limestone water, which I have always considered "hard" for laundry purposes, the above quotation appears somewhat contradictory; but I suspect, as the term is one familiar to grooms, it was used by Mr. Hinds to suit their intelligence. I do not think it would be advisable, however, to supply racehorses with limestone water unless it were procurable wherever their engagements took them. Mr. Darvill says: "Soft, fresh, wholesome, pure rain, river or pond water is, of course, the most proper for horses," and I entirely agree with him, if only for the reason that it can be obtained everywhere, for what is river and pond water in ninety-nine cases out of a hundred but rain water? The same authority

says that "hard" water, to prevent it from injuring horses, should be put into troughs with clay or chalk to soften it. Here again the words "hard" and "soft" are rather vaguely employed, but I presume by the former this is meant "impregnated with mineral," and by the latter pure, and possibly the clay and chalk may precipitate the mineral held in solution, or neutralize its effect. It is quite possible that horses accustomed to "hard" water might miss it, and not do quite as well for a while with pure or soft water, just as a similar effect may be produced on a man who changes from beer to water, or from one kind of liquor to another, although the change both in the case of horse and man will ultimately be productive of benefit.

This is why in the chapter on stabling I have recommended the collection and storage of rain water. Water at a low temperature is injurious to both horse and man, and much of the dyspepsia prevailing in America is due to its indiscriminate use. The effect on a horse can be traced almost at once in the coat, which it causes to "stare" or stand up, a sure indication of something wrong internally. Therefore water ought always, if too cold, to have the chill removed before being given to horses, and I should never serve it at a lower temperature than 60 degrees or 65 degrees.

CHAPTER V.

CLOTHING AND HORSE GEAR.

Uses of clothing—Horses must be kept warm—Summer and winter clothing—Clothing should fit—Roller unnecessary—Boots are indispensable—Best kind—Knee caps—Fetters—Halters—Muzzles—Reins, leading, common, running, and gag-reins, and their uses—Bits—Saddles—Saddlecloths—Cruppers—Breast-plates, and martingales—Surcingles—Bandages—Blinkers—Brushes, rubbers, combs, sponges, burnishers, chamois, etc.—Forks, dung-baskets, brooms, buckets.

THE principal uses of clothing are to keep the horse warm, to protect him from flies in hot weather, and against injury, and to reduce fat, especially in those horses where otherwise it could not be got rid of without so much work as would be injurious to their limbs. Under the head of clothing will also be considered the various trappings that are used in his management.

It is absolutely necessary to keep horses warm; if this is not done they will not derive full benefit from their food, in the formation of muscle, much of it being taken up in the task of keeping up the animal heat. When cold they will be uncomfortable, irritable, and fidgety, and soon assume that appearance which is distinguished by the term "tucked up." The horse at exercise can almost always be kept sufficiently warm, even without clothing, but as the legs would not stand the pace at which he must be kept moving for that purpose, it is desirable to clothe him not only in the stable, but on the exercise ground during a great part of the year. A proper system of heating the stables will, of course, diminish the necessity for clothing, but it would be

undesirable to heat them to a greater temperature than 65 degrees.

Care should be taken that he be not too heavily or too lightly clothed, and as regards different horses the proper amount will be regulated by observation. Clothing should also be provided of a very light description of linen or some light material for the purpose of protecting the animal against flies in hot weather, which are extremely irritating, and often cause him to kick and injure himself. Those used for warmth should be made of wool, soft and light, not too thick, for horses vary in their requirements, and the necessary warmth in extreme cases can be obtained by increasing the number as occasion may call for.

Two generations ago, in the days of four-mile heats, sweating was much more in vogue than now, when it is almost entirely dispensed with, and horses were brought out much finer than at present: consequently various portions of the clothing were made in various shapes to fit the different parts of the body that required reduction. Now, however, clothing only consists of three pieces, the body cloth or quarter piece, breast piece and hood. Blankets put on underneath these will give all the warmth required. Clothing ought to be made to fit the horse, because it lasts longer, is more comfortable, and looks better than unfitting suits. The body piece should buckle with two buckles in front of the chest, and be provided with a cord, hanging from each side of the haunch down to just above the hocks, to keep the cloth from blowing back in windy weather, or at exercise from the motion of the horse. If it is necessary to sweat a horse that has a heavy neck or crest, a blanket may be wrapped round the neck, sewn with a thread and packing needle, and the hood drawn over it. The body cloth is usually confined by a surcingle or roller, having a web about five or six inches broad, fixed with two or three buckles on the near side. But it will be found much better to dispense with this altogether, because it is liable to give a sore back, and the purpose

will be better answered by two or three straps attached to the falling sides of the cloth or blanket, and buckling under the belly. Summer clothing will be of the same shape, only somewhat longer and wider in the quarter piece, to give more protection from flies.

All body clothing should come over the withers and up to the root of the tail, or a little beyond it. Horses often bite and tear their clothing in the stable. This is sometimes done from mischief, but more often because the animal is inconvenienced by it perhaps. The best remedy is to take it off altogether. If this is not done a "cradle" may be put round the horse's neck, or two pieces of flat wood called "swords" attached to the collar or halter and the roller, one on each side. The cradle is composed of a number of pieces of wood tied together at each end, with intervals between them, and surrounding the horse's neck in the form of a truncated cone with the base at the shoulders. The breast piece comes in front of the chest and round the withers down to the level of the bottom of the quarter piece; the hood comes over the head and neck with places for the ears and eyes, the former of which are usually covered up, which I think is a mistake, as it impedes the horse's hearing, and is tied by strings under the neck. It should cover the head to about an inch above the corners of the mouth. Boots are used to prevent horses injuring their fore legs at exercise, but are seldom required on the hind legs, except when a horse "brushes" or strikes the inner part of the fetlock joint with the other hoof. Horses sometimes strike the fetlock of the fore leg, sometimes the leg itself anywhere up to the knee with the other foot. The latter is termed "speedy cutting." I need scarcely say this is a very dangerous practice, and must be guarded against.

I remember seeing Apology, winner of the Oaks and St. Leger, strike herself at exercise on the morning of the St. Leger, and pull up lame. With constant application of hot water the inflammation was subdued,

and she started and won the race. Still, at one time it was such a serious matter that her trainer and rider, John Osborne, telegraphed to the Rev. Mr. King, her owner, to ask if she should run, receiving, it is said, from the plucky parson the characteristic reply: "Start her if she has one leg, all Yorkshire and Lincolnshire on her." This striking is sometimes done in changing legs by horses that otherwise move their limbs straight enough. The instance above quoted shows the desirability of precaution even in the case of true goers, known to be such. Boots are absolutely necessary with those that habitually interfere, and with colts whose peculiarities in this respect are unknown, and with all horses doing strong work. I recommend that they should be worn up to the time when they start for a race. It may sometimes also be necessary to put them on in the stable in the case of horses that are restive when being groomed, and apt to throw their legs about, paw, and otherwise incur the risk of accident. Boots may be made of cloth, overlapping on the outside about an inch to keep off the pressure of the buckles, and secured with from two to four buckles, according as they are ankle or leg boots. They should be lined with serge or linen, and the inside part padded, the outside being edged with leather, of which pigskin will be the best kind. The boots must be made to fit the leg, and the buckles must not be drawn too tight, so as to impede the circulation and fray the skin. They should be always kept clean and dry. The best and lightest boots I have used are made in San Francisco, and are patented. Only leather and india-rubber is employed. Knee caps are necessary in travelling, or when horses have to go on hard or stony roads. These should be made of cloth, hollowed out in front to give room for the expansion of the knee in bending, which may be done by cutting out a triangular piece from the middle of the top and bottom of the cloth in front, and drawing the edges together. They may be lined with chamois leather, and on the outside

of the knee a circular piece of protecting leather will be sewn. They must be buckled above and below the knee, but the straps and buckles ought not to be sewn on all round the top and bottom of the cloth, as this diminishes the elasticity of the latter. The buckles need never be drawn tight at the top, the swelling out of the knee joint dispensing with tightness, and at the bottom they should be comparatively loose.

In case a horse is very restive in his box or stall, pawing and striking out with his forelegs, or kicking with his hind, fetters may occasionally be used in extreme cases. These consist of two strong leather straps about one and a half inches wide, lined with chamois leather or cloth, each passed through the ring of a short chain twelve inches long. The lining should be turned over the edges of the straps to prevent their hard edges fraying the fetlock. These fetters will seldom be required, but should be on hand. They will often check bad habits of kicking, etc., in a young horse. The best kind of halter is the ordinary leather headstall with forehead, throat and noseband ; to the latter, continued under the chain, should be attached a ring whereto a leading rein may be buckled. The lower rings on the cheeks may be square so that a bridle may be attached to them by a buckle and strap, rendering it unnecessary to put on another bridle when the horse has to be led out. This is called in Australia a brush bridle. The muzzle, used when dressing horses to prevent them from biting the groom or manger in the process of dressing, or from eating their litter, should be made of stiff leather pierced with holes for breathing, and may be lined with tin or sheet iron to stiffen it. The straps of the muzzle will pass through runners on the cheeks of the headstall over the head behind the ears, and be buckled on the near side. Horses often learn cribbing, which injures their wind and constitutes unsoundness, by biting their manger while being dressed, and the muzzle prevents this. Before a race, with gross horses, the muzzle is put on to prevent their

filling themselves with straw, when deprived of their full complement of hay.

The leading rein is buckled on to the ring of the bit, or that on the headstall; its use is obvious.

The best kind of bit for a racehorse is a plain, smooth, jointed snaffle, with large rings and long cheeks, to prevent the ring being pulled into a horse's mouth. The rings should be detachable from the cheeks of the bridle and from the reins, to facilitate cleaning. Sewing on the leather is all very well in private stables, where there is plenty of time for cleaning harness. Two reins should always be attached to the bit, and these should be thin, of the very best material, and moderately broad in the web. The lower rein on each side should be passed through a lozenge-shaped guard of thick leather, sufficiently large to prevent the martingale rings from slipping up to the mouth and catching on the buckles of the reins. The common martingale is a broad rein or piece of leather split up into two from about eighteen inches to two feet of one end. The unsplit end is bent into a flat loop, through which the girths pass. At the end of each split portion is sewn on the ring spoken of above, through which the lower rein passes, and then round the horse's neck to the rider's grasp. The object of the martingale is to prevent the horse throwing up his head and causing the rider to lose control over him. Most horses in racing will require a martingale, and few should be without it, although the rein may be loose, or left knotted on the horse's neck. A running martingale is made in the same manner, except that the two split ends are much longer, and instead of being furnished with rings are themselves passed through the snaffle-rings on each side, and led up to the rider's hand, where they are buckled across the neck just like any other rein. That part of the split ends which runs through the snaffle-rings is rounded by the edges being brought together and sewn, which facilitates their running through the rings. A gag rein is similar to the last, only the rein

is split altogether, and the fixed ends are attached to the girths under the saddle flaps. These reins are very useful on occasions. The running rein, left knotted and loose on the horse's neck, when taken up, causes the horse to bend his head into his chest, and renders it impossible for him to throw the former up; with the gag rein he cannot throw it down, and with both, independently of the position in which the horse's head is kept, the power of the rider is doubled by the pulley action of the tackle. A headstrong horse, who might run away with a boy, is very easily mastered with these reins, and it is necessary that he should be, because of the probable injury that will accrue to a young animal from a breakaway, to say nothing of what might happen to the rider, while even if not injured, the horse may acquire a habit difficult to eradicate.

A Pelham or combination bit of snaffle and curb is often used and is recommended by several writers. Being less severe than a curb, it is better than that kind of bit, an excellent aid, I think, to a trooper, or a hunting man in collecting his horse over ridge and furrow and plow, or at his fences, but quite unsuitable to a racehorse who is liable to fight with it, and, in doing so, get out of his stride, thus losing ground. Curbs seem to me only at first, and momentarily, to check racehorses, then being irritated and hurt by the bit, they pull all the harder. A good many years ago I purchased at the Newmarket Houghton Meeting, from Mr. E. Tattersall, a grey mare called Oxford Mixture, at the sale of his stud. She was an unfortunate animal, having run thirty races in three years without winning, although she had been placed often, and in first-class handicaps, and the best judges told me I had paid a very extravagant price for her, nearly £1,000, as it seemed impossible she could win a race. Next day, on going to look at her in the morning, I found her rigged out in a powerful curb, which the trainer informed me was absolutely necessary to hold her. I had the same opinion of a curb then that I have now, and persuaded

him to change the bit for a plain snaffle. Instead of running away or pulling as she ordinarily did at exercise, she went away comfortably with the lad who rode her, and he had not the slightest difficulty in holding her. A few days afterward, in the same bit, she won her first race in thirty-one essays, the Great Tom Stakes at Lincoln, one mile, rather easily, beating good horses. I never had any doubt in my mind that she would have lost if ridden with a curb. She won several races next year in the same bit, and I esteemed her at least fourteen pounds better than her public form, which I attributed to the change of bit, and she would have won many more, but unfortunately before Ascot, she put her foot in a rabbit hole, strained her pastern and never ran again. A twisted snaffle is often used, but I do not see any advantage in it, rather the reverse. A jointed snaffle covered with india rubber I have found excellent with animals liable to sore mouths. I first saw it used in the United States.

For a bolting horse, prickers on the inside of the cheek of the bridle will generally keep him in the course. These are made by driving a number of sharp nails through a piece of leather about an inch in diameter, which is attached to the bridle, with the points inward.

All bits should be made of the very best steel and not too light or thin, for any slight gain in weight is dearly obtained at the expense of severity. Need I say that the reins should be made of the best materials —light and strong?

Saddles are made of all sizes and weights, and some horses will require to be fitted with them, especially those with high withers or any peculiarity of formation. Seven pounds is about the best weight for an exercise saddle, but those used for racing and trials should, especially for the latter purpose, be made of the same appearance, but varying in weight, so that no one but the trainer can tell what weight a horse carries in a trial. Lord George Bentinck was, I think, the first to use a number of saddles exactly alike outwardly,

but varying in weight from four to fifty or sixty pounds. Trial saddles should be kept under lock and key.

Weighted saddle cloths and others are also required, both for racing and trying horses; these need no description and can be purchased of any racing saddler. Cruppers are seldom required on racehorses; not so with breastplates; few if any horses should be started in a race without them, as otherwise the saddle is apt to slip back, and a race may be easily lost in this manner. Breastplates go round the neck, being attached by straps and buckles to the saddle, while, like the martingale, there is a loop through which the girths are passed behind the fore legs. It is best to combine a breastplate and common martingale in one.

Surcingles are made of strong, light web and pass over the saddle and round the girth, buckling on the near side. They serve to strengthen the hold of the girths.

The purposes served by bandages are, firstly, to support the legs, their tendons, blood vessels and synovial vessels; secondly, to dry and keep the legs warm; thirdly, to protect them from injury; and fourthly, to apply lotions, in which I include hot and cold water. Bandages are of two kinds, linen and flannel. The first are used to apply lotions, and also when circumstances render flannel too warm a material for the legs. They are made of sufficient length to wrap the leg round from the lower part of the fetlock to the under part of the knee, the folds overlapping, and are provided with two strings sewn on to one end, by which the folds may be tied and secured in their places. Oil silk or some sort of rubber material should be provided for wrapping outside lotion bandages in order to prevent them from drying up.

Blinkers are used when a horse is apt to pay too much attention to other horses, to be disconcerted by jockeys using their whips, or when he is afraid of the crowd. They are often used unnecessarily; in fact, I

think generally so. The less a horse is trammelled in a race the better.

Scrapers are either single or double handed, in the former case of wood, in the latter of brass, and used for scraping the sweat off after a gallop or sweat.

Brushes should be of various degrees of hardness or rather softness, as some horses have thinner skins than others, and the use of brushes that are hard will make them restive and vicious. Cloths or rubbers of linen or cotton are used for grooming, and should be of a tolerably coarse texture. With a few horses brushes had better not be used, but in general this will be decided by experience.

Chamois leather forms an excellent rubber, but is costly. It will be chiefly used for cleaning bits, bridles and saddles.

Hoof-pickers are required for cleaning out the feet.

Sponges are used for various purposes. For wiping the eyes, nostrils and docks of horses; washing and bathing their legs, and for cleaning saddlery and harness.

Soft soap will be found the best for the latter purpose.

Burnishers made of linked steel are useful for keeping bits and stirrup irons bright, and Rangoon oil to keep them free from rust.

Curry-combs are only used for cleaning the brushes, but occasionally they may be employed for removing mud when it is dry. I prefer a wisp of straw, however.

Stable forks are better of wood than steel, as the former are less liable to injure the horses.

Baskets are required for removing the dung, which should be done whenever the stable is visited.

Whether there be a forge or not, it will be advisable to have at hand a driving hammer, knife, nail wrench, smith's cold chisel and nails, which may be kept in a drawer in the saddle room; and also a fleam in good order, as speedy letting of blood will sometimes save a horse's life.

Besoms or floor brushes and shovels will also form part of the equipment of a stable.

I prefer galvanized iron buckets, as they can be kept cleaner than others, and do not rust.

A box of ordinary carpenter's tools will be found of the greatest use in every stable, and may be kept in the saddle room.

Chains with spring hooks are required for chaining up horses on both sides when necessary.

CHAPTER VI.

SHOEING.

Importance of care with horses' feet—A good hoof denotes health—Vicious practices of smiths—A practical knowledge of the foot necessary—Descriptions of a good foot—The sole—Effects of pressure on sole and frog—Darvill on shoeing—Shoes should be light and short—Forging—French and Italians foremost in shoeing—Blundeville in 1580—Nails and driving them—Conclusions arrived at—Darvill on plating—Time to plate—The Charlier shoe—Advantages and disadvantages—American and English shoeing.

I SUPPOSE it is unnecessary to dilate on the importance of a careful and intelligent attention to the feet of race-horses, and on the necessity not only of being extremely vigilant, but also of adopting the proper method in treating them. Almost invariably, constitutional disease, if it does not directly attack the feet, will manifest its results in them, and when I perceive the hoof to be in an abnormal condition my first inquiry is "What has been wrong with the horse?" A well-formed hoof, with well-developed bars and frog, with clean, smooth sound horn, indicates good health in the past. Besides this, the foot suffers from direct local injury, much of which accrues from bad shoeing, and I think the experience of most people who have had much to do with horses will bear me out when I affirm that horses of all kinds have been rendered useless in a far greater proportion by diseases of or injuries to the feet than by any other cause.

It is an unquestionable fact that the majority of shoeing smiths are not thoroughly acquainted with the anatomy of the horse's foot and with the functions per-

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formed by the various parts of it. If this were not true, the vicious practices which obtain among the shoeing fraternity would disappear. One of these is rasping the outside surface of the hoof; another burning the lower part of it with the heated shoe: a third, fitting the foot to the shoe: a fourth, paring the sole, bars and frog; a fifth, shortening or flattening the toe, or in any way altering the natural shape of the hoof; a sixth, using an unnecessary number of nails, and, by driving them too much aft, interfering with the elastic play of the foot; a seventh, dragging out the clinches. A thorough practical knowledge of the anatomy of the foot, and of the functions performed by its various parts is, therefore, most desirable, and, indeed, necessary to enable a farrier to avoid the mistakes enumerated, as well as others not mentioned, and this knowledge in the trainer's mind is almost as desirable, especially under the prevalent condition of ignorance and prejudice on the part of the farrier, enabling him to direct the smith where he believes it to be necessary. I have usually found that intelligent mechanics, although in a general way conservative about matters connected with their trade, and unwilling to surrender to the *ipse dixit* of another, especially of an outsider who is not one of the fraternity, are amenable to suggestions when the reasons are fully explained and when they commend themselves to their intelligence, provided a little tact is employed in the argument.

The best foundation whereon to build a practical knowledge of the art of shoeing and generally treating horses' feet, is, firstly, to acquire an exact ideal of a good foot, and secondly, a thorough acquaintance with the functions of each separate part. In the sitting rooms or saddle room occupied by grooms and lads it would be wise to provide diagrams giving the requisite information whereby anyone could inform himself of aught connected with the construction and anatomy of the horse, without undergoing the humiliating process of confessing ignorance by asking for information. In Stonehenge's

excellent and comprehensive work, "The Horse in the Stable and the Field," the anatomy of the horse can be profitably studied in detail. I think it desirable, however, in a work of this kind to go less into detail and to dispense as far as possible with scientific phraseology, giving such descriptions as may be called for in a more popular form; and I have no further to go than to the writer quoted for a description of what a good foot ought to be.

"The conditions of a good, sound foot as apparent," he says, "are a smooth, glossy resilient crust, almost circular, were it continued around at the bars, but fuller on the outside quarter, which difference is seldom seen on a foot that has been shod a dozen times; a concave sole not too hard and dry; a full frog elastic throughout, with its centre or frog stay complete; heels sufficiently low and free from crust to bear their share of the springiness of action, and full and well-developed, to allow of freedom to the bones and tendons in their movements. In horses the general rule is that dark hoofs are harder than light ones. The internal organization is in conformity with the external; the healthy state has already been described under the head of bones, muscles, etc. In disease we find a concave, furrowed crust (of the hoof), the elastic process or bed of the same form, and a dished coffin bone; above a convex sole—that is, a coffin bone turned up in front by absorption and flattened like the hoof, spongy and deficient in bony matter; the sensible sole diminished and the horny sole increased in substance; in long-standing cases of contracted heels the interior organizations are alike reduced."

Mr. White, who wrote early in the century, and is described by Lawrence sixty years ago as "a very popular and useful veterinarian," gives another account, which I think deserving of quotation:

"The foot of the horse," he says, "is surrounded and defended in front, sides, and at bottom, by the horny sole, an ungular substance, thicker than the human (in

proportion as the animal is larger). The heels partake of the same kind of defence, but of a thinner texture. The foot being open at the back and not surrounded by the firm sole as in front, is obviously in need of support ; and the intervening frog is destined by nature to that office. On which account, and having so large a portion of the general mass to sustain, particularly while the animal is in a state of inaction, it is composed of a very tough and elastic substance. The frog, moreover, serves as a cushion, rest, or salient point for the tendon or flexor muscle of the back sinews. The bars or binders are those parts situated between the heel and frog, and which, by a mutual resistance from within, help to dilate and to oppose the contraction of the heels. The horny defends the fleshy sole above it, and the internal parts of the foot, from the accidental contact of hard matters ; *but from its concave surface, appears not to have been intended by nature to bear the weight,* excepting round the extremities adjoining the wall. The wall, or crust of the foot, is the thick edge surrounding it, from heel to heel ; it is the bottom of that portion of the sole which envelops the front and sides of the foot, set up as it were at an angle, and thence able to contain nails driven in a vertical direction. This wall then, or rim, is plainly the place on which to fix a support and guard for the foot ; for on the wall and the frog, in a sound and healthy state, the animal naturally bears his weight ; and the frog, in a sound and healthy state, from its tough and elastic nature, needs no artificial defence."

Darvill, in his treatise on the racehorse, published sixty years ago, has the following remarks :—

"The whole of the upper portion of the crust, which is joined to the skin at the lower part of the pastern, is called the coronet ; the sides of the foot are called the quarters, and the quarters terminate in the heels. The front and lower part is the toe of the hoof ; the latter is the term sometimes given to the external covering of the foot. The sole is in the form of an arch, and is situated at the bottom or under part of the foot, and

has a certain limited action whenever the foot is in action. The bars are a continuation of the crust; they are convex and extend along the sides of the frog. The frog is composed of soft elastic horn, is convex, of wedgelike form, and situated in the middle of the after part of the sole, is pointed toward the toe, and spreads toward the heel. In the centre of the broad part there is a fissure, which, when diseased, is termed thrush. It is almost unnecessary for me to remark that the horny part composing the hoof are for the defence and protection of the sensible or internal parts of the foot."

These three descriptions, taken together, will answer the purpose of giving a fair idea of what a horse's foot ought to be, and of the purposes served by the various parts. I take exception, however, to the remark italicized by me for reference in Mr. White's description, exempting the sole from the task of bearing the horse's weight. That this is manifestly an error will be admitted by those who have been in the habit of observing the feet of horses in a state of nature; that is, without shoes. Then, the sole thickens in consequence of the pressure against it, or, more correctly speaking, it thins on removal of pressure by the addition of shoes, especially when horses travel on hard or macadamized roads. The concave form of the sole appears to have been given for the purpose of enabling the foot to spread and develop elasticity under the weight imposed, as does the human hand and foot when pressed against a flat surface, and it does spread to a greater extent than would be imagined, as I have proved by actual experiment. Nature did not intend to relieve the sole of its share in bearing the weight of the horse, although if you look at the system of shoeing common in our streets and thoroughfares, you must certainly conclude that such is man's intention.

Having attained an idea of the foot and a slight knowledge of its parts and their uses, the next step is to consider how the natural form may be preserved, and how the parts may be induced to continue their functions

unimpaired under altered conditions. Shoeing is a necessary evil. It would be far better if we could dispense with shoes altogether and leave nature untrammelled. This was done to a great extent in Australia, where the accessory conditions are a very dry climate and roads that are not sandy or gritty, and which consequently do not wear away the horn faster than nature renews it. In most countries, however, the continuous labour to which a horse is subjected, coupled with other conditions, oblige us to shoe him. If we did not, the wall of the foot, where it comes in contract with the ground, would soon be worn away, and the sensible part of the foot exposed. Our object should be to shoe him in such a manner that the wear alluded to shall alone be counteracted, and that, in other respects, the foot be left in a state of nature.

It must be borne in mind that neither the sole nor the frog are similarly affected, or affected to the same extent as the wall, and may therefore be left to take care of themselves, any protection afforded them being counteracted by injury in another direction. The reason the sole is not affected is that it does not come so much in contact with the ground or with such grinding action, and is also less rigid. The same may be said of the frog, which is also soft and elastic, which saves it from wear, and both have the faculty of thickening under pressure, which the wall of the foot has not. This is proved by the different condition of both, when, after the shoe has been removed, they are allowed to come in contact with the ground for a considerable time, a fact which I will allude to later in describing "The Charlier Shoe." From what I have said, it will be apparent that the best shoe is that which protects the wall of the foot and leaves the rest of it in *statu quo*. Need I plead for a light shoe? It is truly said that "an ounce on the foot is equal to a pound on the back." Ask our professional runners what they think of a heavy shoe.

Mr. Darvill says that light shoes must be nailed with

four nails on each side of the shoe, and that these must be driven further back toward the heel than those of greater width and substance, because they are apt to spring at the heels in galloping and become loose. He also objects to them because they are not of sufficient breadth and substance to prevent very great concussion in galloping over hard ground. As regards the last, it is clear that if no harder substance interfered between the hoof and the ground, the concussion would be less, as it would be still less were the hoof shod with felt or rubber, or some softer substance ; and I fail to see how an increase of such hard substance diminishes concussion. Moreover, in another place he says that no part of the shoe must come in contact with the sole, the weight being borne by only the crust or wall of the foot. Admitting this to be correct, width in the web of the shoe, or extension beyond the point of contact with the wall cannot diminish concussion, and is useless for that purpose ; more than that, he advocates bevelling the inner part of the web against the ground, commencing at the nails, to give the foot a firmer hold, so that on hard ground he deprives that portion of the shoe bevelled of any sustaining function. As regards thickness in the shoe, it only seems to raise the frog and heels off the ground and defeat the purpose which nature allotted to them. The only advantage I can see in a broad web is to protect the sole against sharp stones or flints, and these a racehorse does not meet with either in training or racing. It seems to me that this writer, who is an excellent guide in many things, derives his ideas from his experience of both racing and cavalry, with which he was long connected, combined. He frequently illustrates his views with experiences drawn from his association with troop horses, and I think rather mixes up the two very different things. My experience teaches me that light shoes, well fitted, having a narrow web, need only five nails, two on the inside and three on the outside, and that heavy and broad shoes are at a disadvantage with them as regards concussion, irremovability and

of course weight. I have, however, quoted Mr. Darvill because his opinion on any subject connected with racing is entitled to the highest respect, and judgment and experience can alone decide what is correct. Another reason why I advocate light shoes is that they render plating unnecessary. When the injury done to the horse's feet by frequent removal of the shoes, and the probably attendant discomfort of new shoeing is considered, the very slight advantage in weight of a plate, over a light shoe appears to me more than counterbalanced. Mr. Darvill's experience both with cavalry and racehorses assures him of the advantage of a short shoe, leaving the heels comparatively unprotected, with a saving clause for very hard ground. I should not make even that exception, and with the soft and level tracks and training grounds of America and England this exception may certainly be omitted. The same writer is not free from the mania for paring and thinning the sole, which nowadays all the best authorities repudiate. Shortening the toe is one of his practices, yet he pleads for non-interference with nature. It is well to remember, however, in reviewing the above author's opinions on shoeing, that he lived in a time when there were no railroads, and horses had to travel long distances on hard roads to fulfil their engagements, and existed under other conditions also which are not presented to this generation.

As to the shape of the shoe, it must follow that of the foot. The remark of Stonehenge, that after a dozen shoeings the natural fulness on the outside quarter is lost, speaks volumes for our methods of shoeing. It is too true. To save trouble, the smith makes both fore-shoes alike—interchangeable—and of course the foot has to take the shape of the shoe. The next time any of my readers put their right foot into the left shoe I hope it will remind them of the horse shoemaker, and create sympathy with his victim. As the shoe is not required to protect the sole, it must be as narrow in the web as possible, and the nails must be in the middle of the web.

The shoe must also be as thin as possible consistent with strength, and it must be strong, for it should be remembered that in galloping there is a considerable wrenching or twisting strain. If it is not thin, the frog heels and sole will be raised off the ground and the horse deprived of their natural uses, that is, of his natural supports. The shoe ought also to be flat against the foot and bevelled on the under part against the ground. This will lighten it, diminish the leverage on the nails, and the risk of clicking or "forging," i.e., striking the fore shoe with the hind, and will moreover give a better hold on slippery ground. It is a fact that although England now holds the first place in nearly all matters relating to the training, care and riding of horses, almost everything that is known here of farriery has been derived from the French and Italians. Even now, looking at the wretched, unscientific specimens of horse-shoeing too often to be met with, it would seem, judging from the following quotation from Blundeville, taken from a work dedicated by him to the Earl of Leicester in 1580, that farriery in the present day is the revival of a lost art. He says:—

"The art of shoeing consisteth in these points:—that is to say, in paring the hoove well, in making the shoe of good stuffe, in well piercing the same, in fitting the shoe unto the horse's foote, in making the nailes of good stuffe, and well fashioning the same; and finallie, in well driving of the said nailes and clenching of the same. But sith neither paring nor shoeing is no absolute thing of itself, but hath respect unto the foote or hoove (for the shoe is to be fitted to the foote and not the foote to the shoe); and that there be divers kind of hooves, both good and bad, requiring great diversitie, as well of paring as shoeing. It is meete therefore that we talk first of the diversitie, and then show you how they ought to be pared and shod."

He remarks on the narrow heels of Barbs and Spanish jennets, that their feet generally become tender and hoof-bound (i.e. contracted). In his directions, gener-

ally, for shoeing all kinds of hoofs, he speaks particularly on the quality, mode of driving and clinching the nails. What he says I shall give for the convenience of the reader in such modern English as I am capable of.

"The nails must be made of the best Spanish iron, tapering to a point, and the heads square in sections, also tapering to fill the nail holes, which should be tapering to fit them, and when driven appearing about the breadth of the back of a knife above the shoe, so that they shall be unshakable. If projecting more than that the leverage they offer to any hard substance will loosen them, or they may be wrenched off. There should be no shoulder to the nail. The shanks of the nails should be flat without hollowness or flaw and the point sharp. Grease the nails to facilitate their entering the horn, and drive with a light hammer. Drive the two talon (front) nails first. Then look carefully to see if the shoe is tacked on straight, and fits correctly, and if you think so drive in another nail. That done, let the horse set his foot down on a flag stone, and examine it carefully to see whether he treads on it equally all around. If he does not, take up the other foot so that the horse shall stand firm on the one you are shoeing. So standing strike the shoe with your hammer until it fits exactly all round; then drive the remaining nails. Cut off the points of the nails and clinch them, burying the clinch in the hoof." Blundeville insists upon leaving the quarters and heels alone, except any slight paring necessary to level the bottom of the wall or crust which rests on the shoe. He devotes thirty-two short chapters to hoofs and shoeing, and shows twenty-four diagrams of shoes of all descriptions, fitted for, or used for different kinds of hoofs. From a perusal of the above it will be admitted that some one understood the art of shoeing three hundred years ago, and that we have not much improved upon it.

I think we are justified in arriving at the conclusion that the shoe should be as light as possible, as thin as

possible, as narrow as possible consistent with strength capable of resisting the torsion to which it is liable in contact with the ground. That the nails used should be of the best material, and as small as they can safely be made. That the shoe should be truly fitted to the foot; that it should be fixed with as few nails as will hold it, and if we are convinced that the heel and frog need no protection, as short as all but absolute necessity requires. Its length must be determined by the termination of the hard crust or wall, beyond which it should project slightly, say three-sixteenths of an inch, and at the ends the upper surface should be slightly rounded with the file to prevent cutting the heel or pressing on it with the edge too abruptly. The weight of the shoe will of course depend on the size of the foot, and is usually from six to nine ounces. It might be made much lighter, and I do not see why it should be made heavier than a plate, providing a horse is close to his training ground, and has not got to travel on roads. In the United States, where racing is measured by time, it is said that a horse shod gallops a mile three seconds slower than when plated. I think this is an exaggeration, but, supposing it be two seconds, which is equal to six lengths, plating would be absolutely necessary? Why not use plates altogether, both for training and running? I have used plates or equally light shoes at exercise, from six to nine ounces, and found no injury accrue. I do not see what useful purpose is served by fullering the ground surface of the shoe, as is usually done, except that with such shoes it is somewhat easier to punch the nail holes while fullering weakens the shoe. When horses are re-shod, after fitting the shoe to the foot the place for each nail hole may be marked with a piece of chalk so as to use the old nail holes in the hoof or avoid driving in their immediate vicinity. The shoes of horses whose hoofs are sound should be removed once in three weeks; with brittle or soft-hoofed horses the interval may be prolonged. The object of the clip at the toe,

which is here recommended, is to offer resistance to the forward motion of the foot in galloping or trotting, and it helps to keep the shoe in its place and prevent it from slipping backward, thereby loosening the nails, and, of course, altering its position.

The two front nails should be about an inch and a quarter from the centre of the foot, and the two hinder ones about an inch and a half from the heels of the shoe; but these distances and the number of nails will be regulated by the size of the foot and also by its condition. In weak, shelly, broken feet the smith is only too glad to find a sound place for a nail anywhere.

Mr. Darvill says: "Racehorses should always be plated just before they are brought to the post, where it can be done with safety. All men conversant with the turf are fully aware of the great importance of weight. They consider, very justly too, that every ounce is of consequence."

I disagree with the first part of this paragraph, although I admit it may have been fully warranted in the times he wrote, when, as stated, there was much road travelling, consequently heavier shoes required, and races were less frequent than they are now. One thing Mr. Darvill has overlooked is that extra weight carried at exercise makes horses slow, and this applies to the foot as well as the back, the use of weights to improve the action of trotters, notwithstanding. Also, as I have remarked elsewhere, a shoe to which a horse is accustomed is more comfortable than one quite freshly tacked on. If, however, it is decided to plate a horse, it should be done the day before, after his last gallop, so that in case there is a misfit, prick or other thing wrong in the shoeing, it may be discovered when the horse canters next morning, and remedied. For the fact of standing in the stable will bring out, and make apparent, any defect of this kind, which would otherwise perhaps not be discovered at all were the horse shod on the day of racing, or could not then be remedied. Of course the plates and nails should be of

the very best quality, and the care expended on making and fitting them the same as with shoes. In plating, the old nail holes in the hoof may be used where they come handy. The web of plates should be flat on both sides. Great care must be taken to punch the nail holes, so that they will be opposite to sound horn or old nails and not to confine the heels by driving too close to them. In all respects the same principles that govern shoeing must be applied to plating. Plates will weigh from two to three ounces.

I am surprised to find the following in Stonehenge's work on the horse. Speaking of shoeing, he says: "Whilst the past half century has been so fruitful of results in almost every other branch of industry, it has witnessed few or none in this." He ignores altogether the Charlier system invented by a Frenchman of that name, and perfected in England by Mr. Westly Richards, the celebrated gun manufacturer and inventor, of Birmingham. I had the pleasure of staying with that gentleman in 1880 at his country seat at Ashwell in Rutlandshire, and there of studying the system of which he was the principal exponent in England. Mr. Westly Richards kept a large number of high-priced hunters and hunted with the various packs of hounds in the shires, and his horses were all shod at his own establishment, and on the system I am about to describe. I never saw collected together a stud of hunters showing such clean limbs and good sound feet; one of them, if I remember aright, was a brother to the steeplechase horse Albrighton, thirteen years old, and with legs and feet clean and sound as a three-year old. The frogs of the feet were all largely developed, much more so than I have ever seen in horses shod on the usual plan; the bars and soles were also thicker and stronger. Lameness from pedal causes was unknown in this stable, where the system had been in work for thirteen years. I superintended, or rather overlooked, the shoeing of one horse, which was the only animal that required removal during my stay, and on my re-

turn home I shod a two year-old on the same system, whose shoes remained on unchanged for more than two months, until, having been tried and found worthless for racing purposes, he was sold at Tattersall's in November. My groom informed me that this colt walked sounder and less gingerly over the granite paving of London than those sent with him for sale, and who had been shod in the usual manner by an experienced smith.

The principle of the Charlier system is to allow the foot to come to the ground in a natural way, or as if it was not shod at all, protection being afforded to the lower part of the wall or crust of the foot in the following manner. The instrument used is a knife fixed in a handle about six inches long, with a good grasp, and into which the blade slides longitudinally so that its position may be fixed by screws, which press on the flat of the blade. By this means the projecting portion of the blade may be shortened or lengthened. The blade is turned up half an inch at the end, or a little more, and projects from the flat shoulder of the handle half an inch, or according as it is regulated by the screws. The turned up portion is slightly turned inward at right angles, or parallel to the handle, this turn being somewhat rounded. The knife is very sharp. If the horse's foot is now taken up, the shoulder of the handle pressed against the bottom wall of the foot, and the knife drawn round from heel to heel, the reader will easily perceive that a shred of the crust half an inch wide or so, will be cut off every time the action is repeated, and that eventually a groove about half an inch wide or less and the same deep, will be formed in the crust; the section through the foot showing the angle of the groove slightly rounded at the apex, with sides of equal length, that is, half an inch or less. Into this groove the shoe is fixed.

It is made of bar iron or steel of the best quality, from three-eighths to half an inch or less, square in section. The length, proper, for the foot being shod,

is cut off, heated, shaped to fit the groove exactly, pierced with the right number of counter-sunk nail holes, slightly filed and rounded on the upper inner edge, bevelled at the heels on the upper surface, the groove having been there cut to fit the bevel, and nailed on with fine nails, somewhat flat, and of the very best material, which are clinched in the usual manner, the edge of the horn resting on the iron being, for neatness, filed as in a common shoe.

This rim of iron answers the purpose alluded to in a previous part of this chapter; it protects the wall of the foot and prevents it wearing away. With that exception the foot is left in a state of nature. The sole, bars and frog come to the ground just as if there were no shoe at all. This, in a few words, is the Charlier system. It is very simple and very easy to work. Like all other systems, it has advantages and disadvantages. I will first enumerate the former. Leaving the foot so as to come to the ground naturally, the sole, bars, and frog thicken, and the latter expands, diminishing, as it increases in size, the concussion caused in galloping, and the foot is healthier. It is almost impossible to wrench off the shoe, for, being imbedded in the wall, there is nothing to lay hold of. Mr. Westly Richards informed me that he never lost a shoe in hunting, which is a common and vexatious incident with the ordinary shoe. Smaller nails can be used than with the common shoe, and therefore less injury is done by nailing to the crust, which will, therefore, be sounder. Plating is quite unnecessary. Breaking the shoe is next to impossible, because there is no leverage anywhere, the hoof and shoe being one without projection. The nails, being driven from the middle of a shoe, half an inch wide or less, instead of from the middle of one about an inch or more, are further from the quick, and there is less danger of pricking a horse. The shoes last longer and need not be removed so often. They are more easily made, only the heels require to be forged, and these can easily be filed to a bevel; and, lastly, the

foot takes better hold of the ground, and horses so shod may be driven on slippery, frozen roads in comparative safety; while on heavy ground less resistance is offered when the foot is being withdrawn, after the limb has been extended. Lastly, a horse that interferes or strikes one leg with the other, if shod with the Charlier shoe will, nine times out of ten, cease to do so. As to disadvantages, it is very difficult to get smiths to use the system. Their obstinacy and stupidity is the great stumbling-block. Many of them resemble the executioner in "Alice in Wonderland," who "had never beheaded anything without a body, and was not going to begin at his time of life." The Greeks said that against dulness the gods themselves were powerless. Besides, the Charlier system reduces the shoeing bill, a legitimate ground for objection on the part of the smith. Again, the old system cannot be reverted to at once, or until the hoof grows down. Those shod under the latter go rather tender at first with the Charlier shoe, but improve gradually, as the sole and frog become accustomed to the increased pressure, and meet it with increased thickness. It may be supposed that the heels are somewhat confined by the rim of iron, but in practice, probably from the shoe being short, this is either not the case, or, if it is, no injury is sustained. It is possible, and indeed probable, that on newly laid macadamized roads, or rough stony places, the sole and frog would be bruised, and cut, but this would occur under the old system, unless they were altogether protected, and, besides horses in training are not subject to such a trial. I have always thought that the Charlier system was more likely to be adopted in the United States, partly because of the nature of the roads and partly because new ideas are more valued than in the more conservative countries of Europe, and have no doubt that its adoption will be deservedly rewarded. At the same time, I wish to add that, except in the case of hunters and race-horses of my own, I have never seen the system fairly tried, yet I should not hesitate to

adopt it if I possessed a stud of horses and could find a good smith ready to give it a fair trial. Mr. Fleming, our leading veterinary surgeon in England, was all in favour of it.

I have treated the subject of shoeing as shortly as possible; certainly not at the length which its importance deserves. Neither in England nor in America does it receive the practical attention or command the skill to which its paramount importance entitles it. Think of it, reader! What would you say of the man who neglected the foundation of the house he is building? He who neglects his horse's feet is raising a structure on the sand, and great will be the fall thereof. Not only in the feet themselves, but in every part of the muscular system, is the effect of bad feet felt. Most of us know how tired walking with a blistered foot makes us. When horse or man tries to save his feet he lays undue stress upon other parts of the frame; and if there is weakness anywhere, it is surely found out. The shoeing of racehorses is much worse in America than in England, and much less skill and care is bestowed on it; perhaps because horsemasters exercise less supervision in the latter country. This should not be; for in America horses' feet are much more liable to go wrong than in the old country. Here the soft, grassy training grounds, laden in the morning with refreshing dews, to a great extent neutralize the negligence of man; while in the newer country, the dry climate, prolonged heat, and sandy tracks, render precaution doubly necessary.

CHAPTER VII.

STABLE MANAGEMENT.

Good stable management is essential—Must be systematized—Best food to be given—Cleanliness—Ventilation—Stables kept cool—A cool stable a healthy one—Effect on roarers—Importance of fresh air to young horses—Kind and firm treatment—Physic—Dressing the racehorse—Quiet and vicious horses—Grooms not to lose their temper—Stables opened at sunrise—Instructions as to procedure—Exercise—Morning and afternoon amusement for lads—Hours for training—Cost of training—Bandages, hot and cold—Stopping horses' feet—Clay—Experience in the West Indies—The object of grooming—Manes and tails—Eating litter—Best litter—Wheat straw—Other kinds—Change of air—Filing teeth—Value of change of air.

GOOD stable management is as essential to the success of a racing stable as discipline to that of an army. Those who wonder at the time, pains and expense lavished on the training of a soldier, and which are manifested in the cleanliness of his person and uniform, and in the order of his arms and accoutrements, might be surprised to hear that these, together with perfection in drill and cheerful obedience, contain in themselves the elements of victory. So it is with the racehorse. A strict attention to, and enforcement of all the details connected with the education which is intended to fit him to take part in the contests for which he is bred and trained, if not a guarantee, is, to a great extent, a measure of the success he will achieve. We have only to compare a lad taken from a first-class racing establishment with one coming from an inferior stable, to be able to estimate the difference which will be manifest

in the horses that either has had charge of when stripped for a race. It is necessary to establish a system in stables under which the operations of feeding, grooming, exercise, and riding shall be carried out without deviation, other than that directly ordered by the trainer; and, it goes without saying, that the system should be the very best. There can, of course, be no system absolutely perfect, nor can any system be perfectly carried out. The best system is that, and the best trainer is he, who, like the best general, makes the fewest mistakes, and unquestionably, the fewest mistakes will occur under a good system of management thoroughly carried out.

As stated in the chapter on food, only the very best kind obtainable should be used, and it must be kept in good preservation. To this end it is indispensable that the place of storage shall be kept dry, and, if possible, free from vermin. Horses will often refuse a feed over which rats have been running and soiling. A tin-lined granary will protect oats from the contamination of rats and mice, and the expense will be well repaid. Hay may be protected in like manner, although it is not equally subject to injury, and if kept in trusses and raised off the floor, that will generally suffice. All the buckets and other utensils used must be kept scrupulously clean, and one of the former and a set of the latter should be set apart for each horse, and never used for any other. This applies to the brushes, combs, cloths, bandages, clothing, head stalls, bridles, saddles, sponges, and the rest of a groom's paraphernalia, and lads should be prevented borrowing from each other, as they will do, especially if the supply is limited. By careful attention to these precautions, disease entering a stable may pass harmlessly over the other occupants; or if it is of such a nature that it will spread, no blame can be attached to the trainer or his assistants.

The question of ventilation alluded to in the chapter on stabling, is one of the utmost importance. Food, water and air compose and renovate the blood, and

through it the muscular tissues, in fact, all the material of the horse, and all three, in their purest and best form, are necessary to his healthy existence. It would be the extreme of folly to supply him with the first two at considerable pains and expense, and refuse him the last, which costs nothing, is everywhere procurable, and free to all. Such policy will be, as it ought to be, suicidal. Nevertheless, such is the fatuity of many grooms, and even trainers, that not only is it necessary stables should be scientifically constructed with a view to ventilation, but order and system must be watchfully enforced, to insure that the horse shall not be deprived of what it was designed to give him. In a general way this purpose will be served by keeping the stables cool, at a temperature of about 65° Fah., and for the reason, as before explained, that vitiated air is usually heated above that temperature, rises in virtue of its diminished specific gravity, and disappears by the means provided for its escape. If, as in other arts, statistics were brought to bear on training, I am convinced that disease among horses could be proved to increase in proportion to the increased temperature of stables, that is, in proportion to the vitiation of the air, and I think that without this proof it may be assumed that a hot stable is generally an unhealthy one, and a cool stable the reverse, though the result, of course, will be affected by other causes. In the summer or in hot climates, nothing like the temperature mentioned above can be maintained, and then all that can be done is to keep the stable as cool as possible, while it may here be incidentally remarked that heat at such a time will be less injurious, because the air outside will be of nearly the same temperature as the air within, and the extremes occurring in winter will not be felt.

The beneficial effect of fresh air on the parts immediately affected by it, the lungs and air passages, may be estimated from the fact, which I will ask my readers to admit on the testimony of Admiral Rous, corroborated by my own experience, that the "form"

of roarers may be improved many pounds (the Admiral says fourteen) by training them in an open shed. The constant consumption of pure air is inimical to disease of all kinds, and especially to the disease of the respiratory organs, and those parts immediately connected with them. If, then, fresh, pure air is important to the horse generally, what must it be to young horses, whose lungs and system are, as with human beings at that relative age, more liable to disease than at any other, and especially when they are taken from a comparatively natural state of existence to undergo an ordeal, which, in its varied operations is almost purely artificial, at the age, too, when the foundation of nearly all constitutional disease is principally laid. Consider, too, that human beings, if attacked by disease, which unfits them for a certain career, can deviate into another, wherein, notwithstanding their ailments, they may achieve success; whereas a racehorse must fulfil his own engagements, or rather those made for him, otherwise his career must be a failure, for he can supply no substitute. As the thoroughbred originated in a dry warm climate, it is necessary to keep him warm and dry, and for that purpose sufficient precautions must be taken, without diminishing or vitiating the supply of air. The necessary warmth may be given by means of clothing, or by steam or hot-air pipes, the former being for safety preferred, although neither are necessary. Kind and reasonable, but firm, treatment is imperative with all horses, but more especially with the colt, whose temper and prospects may be ruined by brutality, or who may be rendered headstrong and unruly by the adoption of other than firm and judicious methods.

Physic, to counteract the evil effects of the very great change of living and work which a horse undergoes when put into training, must be intelligently administered. If it is given with skill and foresight it will not only cure ills that have arisen, but prevent those likely to arise, and in this, as in every other case, prevention is better than cure.

As regards the actual handling of the racehorse in the stable, I think I cannot do better than quote Mr. Darvill at some length, because he was a stable boy himself, afterwards graduating as trainer and veterinary surgeon, and also because the method he describes, whether it originated with himself or not, is that which obtains in our best conducted stables. Under the head of "Dressing the Racehorse," Mr. Darvill says :—

"From the repeated and strict orders which a boy, when first put to look after a racehorse, has given him by the groom and head lad, and from his observations on what he daily sees other boys doing, together with the precise regularity of the stable hours, etc., he must naturally conclude, in his own mind, that there can be nothing on earth so important as a racehorse; at least such was my idea as a boy when I first entered the stables. Nor is it by any means an improper idea for a boy to entertain. Each boy is made accountable for what is used about what he calls his own horse, nor does he give even a thought to any other. If caught in the rain when at exercise, he must take care to have his horse's clothes thoroughly dried. If his horse's boots are wet or dirty, they must also be dried, rubbed and brushed. When a boy has been taught his duty he seldom forgets anything relative to his horse. The duty he has to perform in the stables, with regard to the dressing of his horse, is sometimes as difficult as that which he has to attend to out of them, when riding him."

"As the dressing of racehorses, generally speaking, differs very materially from that of most of our hunters and hacks, I think it necessary to make a few remarks on the subject. It is to be observed that racehorses, on coming into the stables from their daily exercise, are not in that dirty or sweaty state in which hunters and hacks generally are, unless after sweating and running (this is another matter, and I shall come to it by-and-by). They therefore do not require to be worked at by those who look after them with that degree of labour

which is so often requisite in cleaning either of the former."

"I shall first notice the regular method to be pursued in the dressing of a quiet racehorse. The boy, on coming in from exercise, rides the horse into the stable, turns him round in the stall, dismounts, slacks his girths, takes off his hood, bridle and boots, unbuckles his breast cloth, turns it and the front part of the quarter-piece back over the saddle. Having put a bit of hay on the ground for the horse to eat, he commences dressing his head, neck and fore-quarters; first, by wisping them perfectly clean with a damp wisp of gardener's matting or hay, and then he uses his brush in the same manner. This being done, he sponges his horse's mouth, nostrils and eyes with a damp sponge, and then with a linen rubber he wipes his horse's head, and every part of his fore-quarters perfectly clean; combs out his mane and foretop, and, giving his ears a few strokes with his hands, he turns him round, puts on his collar and dressing muzzle, and chains the horse's head to the cribbing board (rack). The boy, after kicking a sufficient portion of the litter well back, takes his rubber, spreads it on the litter close to his horse's feet, puts into the rubber the dirt which he picks out of them, which he afterwards throws into the middle of the stable. He then washes his horse's feet clean, and, having given his legs a few strokes down with some soft straw, he takes off the saddle and puts it in its place. He then strips his horse, throws the clothes into the manger, or puts them on the top of the rack, and begins, on the off side first, to dress his horse's body by wisping him well over, twice on each side. In the same manner he brushes him over on each side, then wisps him again once on each side, wipes him over with the rubber, and finishes on the near side; he then clothes him up, observing to place the wrong side of the pad cloth up, with a view to keep it clean, as it is sometimes wanted at the time of saddling, when the horse is going to run. The horse's hood and rubber are thrown over

his loins, as from ranging about in the stall while being dressed, he gets a little warm; the hood, therefore, is for a short time made use of in this way to prevent the horse from becoming chilly. His mane and tail being combed out, the boy kneels down on the near side of his horse and rubs his legs first with some soft straw, and afterwards with his hands or a linen rubber. He then sets his bed fair, and the horse is suffered to stand with his head up and muzzle on until he is fed.

"This is the manner of dressing a quiet horse; and it is a horse of this description that a young boy should first be put to look after, being directed by the head lad until he knows thoroughly how to do everything necessary, as far as regards the cleaning of a horse. After which he may be changed from one horse to another, until he can dress one of a different description.

"Racehorses, when they are sufficiently quiet, are dressed as I have above mentioned; but, like other animals, they vary much in their dispositions. There are some of them which are high-couraged, thin-skinned, short-coated horses, many of which have to sweat and scrape often. Take what methods we will, some of them have a great aversion to being dressed. They immediately become irritated on the boy's unbuckling the roller to strip them; they kick and lash out and range about the stall, and do everything they can to avoid being dressed. A trainer or head lad cannot too often caution a young boy to be cool and patient in the dressing of such a horse. Indeed, it requires as much coolness and patience in the dressing of some horses as in the riding of others, and until a boy has been properly taught, and long accustomed to irritable, flighty and high-couraged horses, he should be strictly watched. When a boy knows how to dress a horse such as I have described, and when he can patiently bear with what a horse may be inclined to do, without abusing him, he becomes as valuable in the stable to the trainer as a good riding boy is out of it.

"In the dressing of horses it is necessary to take every precautionary measure we can to avoid as much as possible making use of anything likely to annoy them. There is seldom, or ever, any occasion to use a curry-comb about the body of such horses in summer. The only use of the comb at this season of the year is in the cleaning of the brush, which latter is, at almost every stable hour, in pretty general use; and what is termed a good one in hunting or saddle-horse stables is made of the best Russian hair, and has been some time in use. This is a sort of brush that few thin-skinned horses can bear to have applied to their bodies. They endeavour all they can to shift from it. Even quiet horses will show their dislike to being brushed over with such brushes by shifting and ranging about in their stalls. Others, of a more irritable disposition, I have known to be quite vicious at the time of their being brushed over. One horse may be seen endeavouring to fly at a boy, while another may be observed trying to press the boy with the whole weight of his body against the side of the stall. A trainer may prevent a great deal of this occurring by not allowing such brushes to be made use of in the stables. Indeed, there are many thin-skinned horses which would, in the height of summer, be much better without being brushed over at all, at midday stables particularly; wisping them thoroughly with well-damped wisps of garden matting, and afterwards wiping them over with the rubber, putting their clothes straight, combing out their manes and tails, and hand-rubbing their legs for a short time, is all that I should recommend being done to them prior to their being fed at mid-day stables.

"As it has often fallen to my lot to look after such horses, I shall endeavour to point out the best way to dress them, so as to annoy them as little as possible. Everything that is done to the quiet horse in dressing is also to be done—if possible—to the high-couraged, excitable one, but he will not permit its being done in exactly the same manner. Therefore, some little strata-

gem, with good temper and patience on the part of the boy, is absolutely necessary to prevent the horse from losing his temper, becoming violent, or breaking out in a sweat at the time of dressing.

"As I have just observed, some horses of this description are resolutely vicious; they freely use their legs and feet, and are inclined to be more familiar with their mouths than is pleasant. They will watch their opportunity, and seize even the boy that looks after them; but this is not by any means a common occurrence. To prevent this the boy must be careful at all times to secure his horse's head before he attempts to do anything to him. For example, when the horse comes in from exercise, and has been turned round in his stall for the purpose of having his head dressed, and his hood and bridle taken off, the boy, being on his guard, begins by sponging his horse's nostrils, and, having wiped them dry with a linen rubber, he puts on the horse's dressing muzzle, and it may also be necessary to buckle up his head with the pillar reins (but this is not very commonly required) before he ventures to dress his head and fore-quarters. Having properly finished both the latter, he turns the horse back in the stall, removes the muzzle for a moment to put on the collar, when the former is replaced, and the horse's head is again chained up to the cribbing board. His feet and legs being done, his quarters are next to be cleaned, and the way this should be done is very similar to that in which such a horse is generally scraped and rubbed after sweating. The clothes and saddle are not immediately to be taken off his body; the former should be turned back over the latter. The boy is then to set quietly about dressing the horse's quarters, first, by working with his wisp. If the horse will not allow him to use it about his sheath, or between the inside of his thighs, the boy should not be suffered to persevere with it here. He should be directed to lay hold of the horse's hock or tail, and by degrees try what he can do with a rubber, a soft, damp sponge, or his hand; or after he

has finished dressing his horse, and has clothed him up, he may then try and clean those parts. I have known some horses, when clothed, stand perfectly quiet to be cleaned about the upper part of their thighs, which would not otherwise allow such being done. The horse's quarters being dressed, that is, wisped, brushed and wiped over, his saddle and clothes should be taken off; but, previous to doing this, it may be advisable to put on his boots, to prevent his injuring his legs by striking them, for it often happens that the horse becomes most irritable when a boy is working at his body, and in ranging about in the stall, as I have before observed, kicking and lashing out with his hind legs, pawing, stamping and striking with his fore legs, a horse will occasionally strike one of his feet against the opposite leg. If he has not boots on to ward off the blow, the leg will swell, which may oblige the trainer to stop his work, or run the risk of the horse going lame.

"Another thing to be observed in a young boy who is not accustomed to dress a horse of this description, is his temper. He must be cautioned strictly not to suffer passion to get the better of his reason. If it should, and the trainer be not by at the time, he will be very likely to abuse the horse by striking or kicking him in the belly, or, what is very much worse, in the fore legs. It is therefore necessary, just at this time, to pay strict attention to the boy, that he may not do mischief. I have often watched the trainer to the lower end of the stable, and then kicked an unruly horse I have been looking after in the fore legs. A boy while dressing a horse of this kind should have a small ash plant in his hand, but should not strike the horse with it if he can possibly avoid it. Fighting with a horse of this description in any way seldom answers. Holding the stick up occasionally with a view to check him a little, is the better mode; and when the horse makes any attempt to press the boy against the sides of the stall he has nothing more to do than to push him quietly from him.

"The cautions and directions given by a trainer to a young boy on his first being put to dress this kind of horse mostly puts him on his guard, and, if he is not very stupid, from his former practice with other horses, he soon finds out at what part of the stall he can safely stand, and judges with great nicety the different lengths of his horse's kicking and lashing out with his hind legs, as well also as his pawing, stamping and striking with his forelegs.

"A boy, looking after a horse of this sort soon becomes familiar with his tricks; he then generally keeps his temper sufficiently well not to abuse him, which gives the horse confidence in the boy. The former becomes less mischievous and the latter less cautious, and after a time they generally agree tolerably well together; nor should the trainer part them if he can possibly avoid it, more particularly if the horse is inclined to be resolutely vicious."

I think the latter part of the foregoing description is applicable to more horses in England than in America, partly because Americans are more gentle with their animals, and partly because the horses themselves are less lively and excitable.

Although most animals, except beasts of prey, rise and retire to rest with the sun, this is not the case with horses and cattle, who often feed during a great part of the night. Nevertheless, the racehorse should be left to himself during the hours of darkness. The stables ought to be opened at, or shortly after, sunrise, or say 5 a.m., and the lads should go to their horses, dress them slightly, removing any stains that may have occurred during the night, and put the litter straight under them, removing any dung by means of a basket used for that purpose. Before doing this, however, they should give the horses a few "go downs," or swallows of water, with the chill off in the winter, unless the water has been by them at night, when they will not require it, and half a feed, or less, of oats, which may be consumed while they are being dressed. It is bad for man

or beast to work on an empty stomach in the morning. Having put on the clothes and left the horses to finish their oats, the boys should be served with a cup of tea or coffee, and bread and butter or biscuit; otherwise exercising for a couple of hours is apt to make them irritable and nervous. By the time they have finished an hour will have elapsed since the stables were opened, at five o'clock, and the horses will have disposed of their feed. Any unfinished hay will at first have been removed from the rack. In some cases, according to the trainer's judgment, a double handful of oats will suffice. Another half hour may be consumed in saddling, bridling, booting, and regulating the necessary clothing. During this time the trainer should go round the horses, examine them, feel their legs, and ascertain if anything is wrong, for although he will have ordered each boy to report "all right," or otherwise, on coming for his coffee, he must not altogether depend on that, but himself exercise personal supervision. The immediate detection of any injury is of the utmost importance, for it often happens that a very slight one, if not immediately attended to, and if the horse is allowed to do a strong gallop or canter, or even walking exercise, may assume dimensions which will prevent him from fulfilling his engagements, or even render him useless for racing purposes.

The horses will be turned round fully accoutred in their stables, and, at a word from the trainer, will be mounted and ridden into the stable inclosure, where they will circle round the trainer at a walk for a few minutes, and also trot one or two rounds, by which he may be able to detect any lameness, or anything else that has escaped him in the stable. Should he do so, he will order the horse affected back into the stable and examine him at leisure, after the rest have left for the exercise ground, where they will proceed to do such walking, trotting or cantering as he may direct. This will be the best time, while they are circling round him, to give intructions to the different riders as to what work the horses are to undergo. To those riders whose

horses he wishes to exercise under his own eye, such for instance as have early engagements to fulfil, or who are delicate and apt to suffer, or refuse their feed if undue liberties are taken with them, he will simply say that they are to walk their horses to a certain place and await his arrival. The head lad, who goes with the horses, will take pains to have the trainer's instructions carried out, for, if left to themselves, boys are very apt to disobey them. It is desirable that the trainer should make up his mind as to the orders he shall give, for any alteration in this respect is apt to confuse, and has a bad effect on subordinates, and he will the better be enabled to do this with judgment after he has seen the horses circling round him for some time.

In the meantime the helpers will have been employed in opening the windows and ventilators, cleaning out the boxes, stalls, and passages thoroughly, removing all the soiled litter, and replacing it with fresh litter, taking out any unconsumed oats from the mangers, and cleaning the latter and the racks, so that the horses on their return will find their homes "swept and garnished."

On return from exercise, which will extend over two hours, more or less, care having been taken, however, to send back those horses earlier which might require less work, each lad will water his horse if he is cool, if not he will wait till then, and proceed to dress him, as fully described in the foregoing part of this chapter, letting him stand with the muzzle on until a half hour has elapsed since his return, when he will feed him, leave a little hay in his rack, take such articles as require cleaning outside, and shut up the stable to let him finish his feed and lie down for four hours, or until 12.30 p.m. During this time the lads can have their breakfast, after which they will be put to clean and dry the clothing, clean the bits, bridles and saddles, and perform other duties allotted to them by the trainer. At 12.30 p.m. the stables will be reopened, and the horses watered and fed.

After this feed no hay should be given ; it only fills the horses' bellies, and they are much better employed in resting. The horses will then be left to themselves until 3.30 p.m., when they will be taken out again to exercise for an hour, more or less, the same routine being observed now as before. Except removing any dung and putting the litter straight, they need not be dressed until their return from afternoon exercise. They will then be dressed and watered and fed as before, which will take up the time till 8.30 p.m., when they must be fed again, their beds made up for the night, the hay put into the racks, and everything made comfortable. While the horses are eating their first afternoon feed, the lads can have their dinner, and their tea when the day's work is completed. One lad should always sleep in the stable in case a horse should get cast, or be frightened during the night ; by this means any serious injury may be prevented.

Some horses will require more exercise, and some less, and it may not be considered desirable to exercise some in the afternoon. As a general rule, it is better to do cantering and galloping in the morning, and walking in the afternoon. It is very desirable that the lads should have some amusement provided for them. It will certainly keep them from mischief, and increase their efficiency, for all work and no play makes Jack a dull boy.

These hours are based upon sunrise and sunset during the months of racing, between April and October, inclusive, and may, of course, be modified, but regularity will be found of advantage in training. I think 5 a.m. is quite early enough for lads to be out of bed, and if they are called at a quarter to five that will be sufficient. Neither horses nor men are benefited by being at exercise before the morning is aired. It may be necessary to break the hours in the case of certain horses, but I think it most desirable that the work of men and horses should, as far as possible, be concluded before nightfall. Some few stables have a sufficient number of lads to

give all the horses exercise at once. Under such circumstances it will be found convenient to vary the hours of work, both for horse and man, and the trainer will have to cut his coat according to his cloth. One thing I desire to impress upon those owners who, from motives of economy, cut down the remuneration of trainers as low as possible. A trainer who trains cheaply cannot train well, if he is to make a living by it, and any such saving owners will have to pay very dearly for it in the end. The ordinary charge for training in England is *2l. 2s.* a week, when the owner finds saddlery, clothing, shoeing, etc, and *2l. 10s.* all in, and I do not see how it can be done cheaper. Bear in mind, too, that trainers must live, and if they cannot pay themselves in one way they will in another.

Bandages, as stated in the chapter on clothing, are used to support the legs, to reduce the enlargements of the synovial bags, generally termed wind galls; for drying the legs after washing, or to reduce inflammation by the application of moisture, as well as to protect the limbs from injury; and as above employed they are very useful to the trainer. They are all put on in the same manner, viz., the bandage is rolled up tightly with the strings inside, and taken in the right hand, the left pressing the loose end against the leg above the fetlock, until a turn round the leg keeps that end from slipping. The bandage, gradually unrolled in the process, is, with equal pressure, wound round the fetlock and below it, till that part is covered, all the folds overlapping; then up again over the fetlock and round the leg to the knee, and down to the middle of the cannon bone until all the bandage is used up, when it is tied securely by the strings and knotted on the outside; a very simple matter as described, but the art consists in distributing the pressure equally throughout, and it is not every one who can attain this end. The pressure will be varied according to the purpose for which the bandage is used; as a support to the legs, and for reducing the synovial enlargements, it will be tighter; for the other purposes

looser. In the case of lotions linen will always be employed, and sometimes in warm weather also, but otherwise flannel will be used. I have never regarded a bandage simply dipped in cold water as a cold water bandage, or as producing its effects. The warmth of the leg soon communicates itself to the material, and you have a warm water bandage. Similarly, the hot bandage arrives at the same equable temperature. If, however, constant applications of cold water are renewed to the leg, then the bandage partakes of that characteristic, and the same remark applies to hot water.

Writers of eminence speak of cold water as reducing inflammation. My opinion is that it usually aggravates it. If there is inflammation hot water should be used, applied with the foot in a bucket by means of a sponge. But cold water often prevents inflammation, and will reduce an enlargement. The best way of applying it is to turn a jet of water on to the horse's legs, to walk him about in a river, or in the sea water, which, because of the salt and iodine it contains, has a very beneficial effect on the legs of horses.

Bandages of wool or flannel are frequently used for drying the legs of racehorses after they are washed, and this, with hunters and carriage horses, whose legs are frequently dirty, and require washing, is a convenient practice, but it is seldom necessary with a racehorse, and I prefer at all times brushing and handrubbing. If legs are washed it should be with warm water. This, as well as rubbing, draws the blood to the surface of the skin (cold water repels it), and promotes a healthy circulation in places where the latter, because of their distance of the heart, acts most feebly.

The feet of racehorses are not so liable to become diseased as those of other horses, chiefly because their work is done on soft ground, and because their feet, from being more lightly shod, are left more in a state of nature, with the bars, sole and frog more in contact with the ground. Nevertheless, great care and atten-

tion must be paid to them. They should not be allowed to get too dry or too moist; in the former case they will harden and splinter, and in the latter weaken. In America they are more likely to suffer from the former than the latter. The dews of summer on our well-grassed training grounds in England keep the feet of horses sufficiently moist. Dryness is often the cause of contracted heels and a withered frog, while the hardness of the horn brings undue pressure on to the sensitive part of the foot, just as the nail of the human foot is often productive of soreness by pressing on the quick. In order to soften the horn, cowdung, or cowdung and clay, are often introduced into the bottom of the foot, filling up the cavity between the ground and the sole. Corrupted matter of this kind is likely to cause thrush, and injure the texture of the horn; therefore I should never use it. Pledgets of tow kept in the foot by splinters of wood fixed under the shoe, or a felt pad wetted and fitted to the foot, are cleaner and more wholesome. But I recommend in preference tar ointment, which is composed of equal parts of tar and lard, or mutton fat. Yellow basilicon ointment secures the same end. The best application, however, is damp clay, plastered into the hollow of the foot, where it sticks like putty, and renewed when it gets dry, or in the case of feet that have been neglected, and where the heels have become contracted, used in the following manner:—Take up the paving of a stall and lay it with pure clay moistened to the consistency of putty; let the horse stand thereon for a few hours a day for a few days each week. The clay is a disinfectant; the foot will sink slightly into it, even pressure being brought to bear on walls, sole, bars and frog, which will all become nicely, but not too much or too suddenly, moistened. I owned a racing mare in the West Indies, where horses' feet suffer a great deal from dry heat, who, when I bought her, had contracted heels, from which cause she was lame. Indeed, I got her very cheap for that reason. I had a stall treated as above described, and stood her

in it five or six hours a day, first paring the after wall of the foot on both sides quite thin, so that it gave way under the pressure of the thumb, treating the bars and rear part of the sole in the same manner. After about two months I removed her into an ordinary stall with tips on, occasionally putting her back again on the clay. I took the shape of the foot, before and after the experiment, on a sheet of paper, and the result was that the heels had expanded more than half an inch, and remained at that. When the horn had thickened sufficiently to bear three-quarter shoe I cantered her, and she went quite sound, and while I owned her she won several races, and never went lame. I may add that I applied tar ointment to the hoof and sole all round.

Grooming has been alluded to under the head of dressing, and as it will possibly appear to some that there is no necessity for taking such pains in dressing the racehorse, it may be advisable here to give the reasons for so doing. When a horse's coat is sleek and shiny, and when it wrinkles under the hand drawn along the side, you may be perfectly certain that the pores of the skin are open and unobstructed, and that the horse is constitutionally in good health. When a horse exercises or sweats, or even when he does not sweat, the pores throw off secretions, which, if not removed, obstruct their action, clogging them and filling the coat. The object of grooming is, by friction, to remove the excretions, or scurf, as they are termed, and to determine the blood to the surface of the skin, thereby increasing the activity of the aforesaid vessels. In a state of nature this would be unnecessary; the wind blowing through the coat, the rain washing it, the horse rolling, will effect the same purpose. It is therefore requisite that all stabled horses should be groomed after returning from exercise. But some horses have finer skins than others and less hair, or are what is called "tender skinned," and the sort of grooming proper for one sort will injure and irritate the other. Wherefore care must be taken

that the grooming each horse receives is adapted to its peculiarities, and particular attention must be paid to the instruments used, so that while some horses may be rubbed with a hard brush, others must have a soft one, others again a wisp of hay, while on some a rubber should only be used. The observant trainer will soon find out the proper appliance, and direct the attendant accordingly.

To the eye accustomed to any particular form, a divergence therefrom appears strange and improper, but it is not necessarily the latter. It is customary in England to cut off the tails of racehorses just above the hocks, but I think that in countries where flies are very troublesome the tail may be left intact, so that the horse can switch off a fly anywhere under his belly. Of course both mane and tail must be kept out of tangle and well combed, and with the former, which should always be made to lie on the off side, a water brush will be used.

If horses are inclined to eat their litter I think it reasonable to suppose that they do so because a sufficiency of food to their taste is not provided. With such horses I should increase the supply of oats and hay, and vary the food, and if he persists I should bed him with peat instead of straw. I do not believe that stinting a horse in his food does any good, and indeed the anxiety of a trainer in this respect should be as to his horse eating enough. "How's this horse? Did he clean out his manger?" is the question by which the trainer satisfies himself of the well being of his charge. Food must be converted into fat and muscle, and he knows, or ought to know, how to get rid of the former. If he tries, by stinting food, to reduce it, he must by the same means reduce muscle. Now and then some wonderful animals may exist who set at defiance the laws of nature and of art; if an owner is so unfortunate as to possess one of these, I recommend that he transfer him for a consideration to any one desirous of such a bargain. The idea of stinting a healthy horse in his

food is only worthy of consideration by trainers who prepare horses for racing at 30*s.* a week.

I have adverted in the chapter on stabling to the advantages of a winnowing machine, or oat cleaner, for extracting the dust, etc., from oats, and supplying them by degrees through a chute to the especial bin, which should be in charge of the trainer or head lad. Here, at feeding hours, either should take his stand, and measure out to the lads every feed for every horse, for it is undesirable that horses shall have put before them either more or less than they can consume. By personal observation, and by interrogating the lads, the trainer will soon come to know what feed any horse ought to be supplied with. Knowing his constitutional peculiarities, he will be able intelligently to add a handful of beans here, or a handful of chaff or chopped carrots there, and this distribution should not be left to the lads, but should be undertaken by the trainer, or a trusted assistant.

The best litter, especially for cold weather, is wheaten straw. It should be plentiful and clean. Horses derive great warmth and comfort from a good bed, and will often lie down when it is good, and stand up when it is bad. Oaten straw or barley may be used, but they break up more easily, and therefore do not last so long.

Sawdust in warm weather may be used, but it depends upon the kind. I have had very conflicting accounts and experiences of its effects on the feet of horses, which some say it injures. I think that is likely to be the case with any that contains much resin.

Peat, especially that obtainable in Ireland and Germany, is good for horses' feet, and may be used in warm weather. It is antiseptic.

Whatever litter is employed, it should be used unsparingly, and kept clean, all the part saturated with urine being removed.

Many owners, and especially inexperienced ones, are

fond of looking at their horses, and showing them to friends, or sending friends to see them. If I were a trainer, dealing with such employers, I should always mislay the key of the stable, or disappear with it until the infliction had also disappeared. Horses should rest in their resting hours, and be left alone at their feed. Perhaps if a horse, like a woman, understood our language, he would be pleased at hearing the inane complimentary remarks amateur inspectors seem to consider it necessary to make about any horse they are invited to look at. Perhaps not.

I imagine, however, a woman would feel disgust at having her good points indicated with a stick or umbrella, as I certainly think she would with her bad ones. At any rate, it annoys horses, as any one will know who has watched them closely. Horses, as well as dogs, hate being pointed at. I remember a lad I once employed for a short time, who used to drive a bad-tempered mare frantic by pointing at her. These matters may appear trivial, but no detail is trivial in the training of a racehorse, where a pound weight or a moment's inattention may make the difference of a fortune.

Change of air is as important a consideration with racehorses as with human beings. This is one reason why change of stable so often makes a loser into a winner. Of course, the management may have been improved in such cases; it often is; yet taking equally good management, change of air will do wonders.

If I owned a large stud of racehorses I should have two training establishments, simply with the above end in view.

It sometimes happens that horses refuse their feed, appearing otherwise in good health. This is often due to lampas, a swelling of the gums and flesh of the mouth between the teeth, which, being sore, prevents the horse from chewing. I think it is Mayhew who curtly describes lampas as "a groom's fancy." Nevertheless, the swelling and inflammation often does exist, and the best way to treat it is to do nothing. It is probable that, as

the skin of the mouth is a part of the mucous membrane, the swelling proceeds from disorder of the stomach, the result of overeating, and the refusal of food will correct it. The barbarous practices of lancing and burning the horse's mouth, probably, by preventing him from eating, relieved the stomach. If the horse seemed in other respects to require a dose of physic, I should give it to him, otherwise, as I have said, do nothing.

Sometimes the grinders become so sharp as to cut the inside of the horse's cheek, and the pain prevents him from feeding and properly masticating his oats. The teeth should be filed, and the effect will disappear with the cause.

CHAPTER VIII.

PHYSIC.

A necessary evil—Nature supplies the best physic—Uses of physic—Effects—Staleness—Plethora—Barbadoes aloes—A ball—How to make and give it—Preparation for physic—Delicate horses—Good constitutioned horses—Effect of food on physic—Treatment after physic—Gross horses in physic—Benefit derived by stale horses—Horses show good form after physic—Dangerous except in competent hands—Physic after an injury—Objects attained—Course of procedure—Return to active work.

THE question of physic is one that claims reluctant attention. It has its opponents and its advocates. Among the former will not be found practical trainers, who are too well aware of the important part it often plays in the training, and in the success of racehorses, while among the latter may be numbered not a few who allow its use to degenerate into abuse. Physic may be an evil, but it is a necessary evil. I suppose no one would take physic himself or give it to his horse unless he thought it was productive of good. In this respect it is like adversity, "which, like the toad, ugly and venomous, wears yet a precious jewel in his head." If nature is left to herself, a horse will generally be able to throw off any humours that pervade or any evils that attack the system. I remember an extreme case of this kind which happened in Ireland. A friend of mine had a valuable two-year-old filly in his stable which he bred himself, and asked me to look at her. I found symptoms that apparently denoted the presence of worms, and treated her with the usual remedies, but with no result. Failing in this, I prescribed other

remedies equally abortive. I may add that he had before secured the services of a competent veterinary surgeon, with a like result. At last one day, when I was staying at his place, he told me the filly was getting worse, would not feed, and was gone all to pieces. I said: "Turn her out to grass." "What! At this time of year!" It was near the end of October. I said: "It may do her good; nature and fresh air work wonders; the weather is very mild, and if she dies she may as well die in the field as in the stable."

On returning home the weather changed, and for a week there was snow and sleet. Remembering the advice I had given, I sent my groom out with a note asking my friend not to turn the filly out in such bitter weather. He replied that he had turned her out on the morning of my departure and that he should let her take her chance. When I went to stay with him for Christmas, he told me that he had something to show me in the morning. This proved to be the filly in perfect health and hearty condition, plunging and kicking on the cavesson in a way that showed clearly that she had nothing the matter with her. I trained her afterward, and she won races. This anecdote will illustrate what Dame Nature can do, even under adverse circumstances, if left to her own devices. But, unfortunately, our requirements as regards racehorses in training preclude any experiments such as I have related, and we have to resort to other aids; hence physic is necessary. A leg may fill from a blow or some other cause; while an important engagement, for which, perhaps, the animal has been well backed, is looming in the immediate future. The leg must be reduced, and, at the same time, the horse cannot be allowed to put on too much flesh, either inside or out, or his chances of winning will be very small indeed. In that case, physic must be used. But perhaps it is better to enumerate the various purposes which physic will accomplish, and then to describe the mode of administering it. We give physic:

1. To refresh horses, or to take the staleness out of their bodies.

2. To take the swelling out of their legs.

3. To bring their digestive and secretive organs into a healthy condition.

4. To relieve their systems when overcharged by stoppage in work or other causes.

5. To prevent plethora.

6. To reduce flesh when necessary—that is, when this cannot be otherwise done within the time at our disposal, or without injury to the limbs.

7. To reduce the inflammation in injured parts.

It might be asked why the objects suggested by Nos. 4, 5 and 7 could not be attained by diminishing the supply of food? They certainly could, but at the expense of muscle, which we desire to preserve, and of time, which we desire to save. A reduction in the quantity of food for any length of time would infallibly result in atrophy of the muscular system, which it is most desirable to avoid; defeating, as it would, one of the principal objects of training, and diminishing the horse's powers. The aim of physic is, practically, to accomplish the objects enumerated above with the least possible detriment to the muscular system, and in the shortest time, so that the horse's preparation shall be as little interrupted as possible.

What is called staleness is a flabby and wasted condition of the muscles, the result of overwork and insufficient rest; that is, the animal has been deprived of the necessary period of rest, during which the repairs of the muscles should have been effected through the action of the blood.

The overcharging of the system alluded to in 4 and 5 is the result of the inability of the secretive organs to throw off that portion of the food consumed which is unnecessary to the support of the system, and which, if allowed greatly to accumulate, poisons the body and results in death.

All the purposes enumerated are best attained by the

administration of purging medicine, or, as it is usually called "physic," in judicious quantities, which produces the desired effect by acting initially on the stomach through the mucous membrane.

The best physic, and indeed the only kind that should be used, is Barbadoes aloes. This is often (I think unnecessarily) mixed with ginger, carbonate of soda, aromatic powder, oil of caraway, rhubarb powder, calomel and other ingredients, and may be given in quantities of three to eight drams made up into a ball, which is usually shaped like a small roll. The ordinary physic ball consists of, Barbadoes aloes, three to eight drams; ginger, one dram. Dissolve these in a small quantity of water, evaporate to the consistency of putty, and roll into a shape about two and a half inches long. Hard soap or some other substance is usually added, but is quite unnecessary. To give a horse a ball, open the mouth, pass the rope of the headstall through, lay hold of the tongue and draw it out of the mouth sideways with the left hand, which also holds the halter cord short so that the strain is partly taken off the tongue. Take the ball in the three extended middle fingers of the right hand, and, with the arm bare, put it as far down the throat as possible, holding the horse's head up until the ball is seen to pass down the gullet. Timid grooms generally use a balling iron. The horse cannot bite, however, as long as his tongue is held in the position described.

There are numbers of other balls and drenches, fancy and otherwise, that can be administered at pleasure, or on the advice of a veterinary surgeon, to suit specific ailments; but that which I have described above cannot be improved upon for the purposes for which it is intended, and of which I am now treating.

The preparation of horses for physic will vary according to their constitutions, and so will the dose. It is not intended here to enter into the physicking of horses for various diseases, a matter which might be intrusted to the veterinary surgeon, or learned from any competent

work on the veterinary art, but merely as regards those purposes which may come within the scope of training.

Horses, as hereafter stated, may be generally classed as light and delicate, good constitutioned, and gross, heavy feeders. Between these three will be found many who incline to one class or another by almost imperceptible gradations, just as the colours of the spectrum incline to each of the primary colours in such fine gradations, that only a very practised eye can tell which of them preponderate.

It will rarely be necessary to physic light, delicate horses, except in the case of local injury, and inflammation which has to be reduced; but when found to be so, it must be done in the following manner: A horse of this description will not require more than three or four drams of aloes, and it will be better to give this without preparation, by mashes, etc., in doses of one dram morning and evening, giving him exercise regularly if the circumstances admit of it, to assist the action of the medicine, and discontinuing it when his bowels become affected. No change need be made in the horse's food and water.

Horses of the medium class, that is, good constitutioned ones, should be limited to about five drams, which may be given to them about twelve noon, preceded by two or three bran mashes, two given the day before and half a one in the morning; and they should have only one-half their allowance of hay at night. They must be taken out to walking exercise for two or three hours in the morning, when they will empty themselves, and their bowels will become relaxed. On return to the stables, the physic should be administered about twelve noon in such quantities as the trainer may consider desirable. A quantity of food retards the operation of medicine, and is often the cause of its producing no effect. Horses that are inclined to eat their litter should be muzzled at night. After their physic the horses may be dressed, and at the usual stable hours should have warm water to drink at a temperature of about 100 degrees

Fahrenheit, and be fed sparingly with mashes, which they will often refuse, being sick from the physic. They may have a little hay given them, and, if they will eat neither hay nor mashes, some clean, sweet straw to pick, and they will remain in the stable all day.

On opening the stables in the morning after the physic has been given, the bedding should be set back for the horse to purge on, and the tail plaited back, the end being turned up to prevent the horse soiling it while purging. The horses should have as much warm water—at 100 degrees—as they will drink, after which they will be brushed over and clothed warmly according to the temperature outside, and, being saddled and bridled, should be backed out of the stall or box so that they may not purge into the manger. Exercise greatly assists the action of physic, and the trainer will regulate the time for being at walking exercise, and the number of times each horse is taken out, by the action of the medicine. Some horses may not require to be taken out more than once or twice, while others may have to come out three times; the first thing in the morning, at about midday, and at about four in the afternoon, for about an hour at a time, or such period as the trainer may consider necessary. On returning to the stables the horses should be ridden into their stalls, where the boy will dismount, take off the hood and bridle, wisp and wipe the horse's head, sponge his nostrils and wipe them dry with a rubber, put on his headstall and tie up his head. No harm will accrue to horses from having their feet washed. Therefore this will be done first, and, after warm water has been given them to drink, they may be stripped and dressed and their legs well rubbed. When their beds are made up they may have their mashes and hay, and be left to themselves, the stables being shut up. On opening the stables at noon the trainer will be able to see which horses have purged freely and which have not. The latter will be watered as before and sent out to exercise; the former will remain in their stables until

4 p.m. Those that go out at noon will be treated on their return in the same manner as in the morning, and those that have stayed in should be watered, cleaned, wisped over and clothed up, their manes combed and their legs rubbed, and all are to be fed on mashes and a small portion of hay as before. On visiting the stables at 4 p.m., the trainer will make his observations as to how each horse has purged in the stables, and such as have greatly purged during the day he will order to be left in, and the others he will order out to exercise, the same procedure as before being adopted going out and coming in. To those whom he considers have purged sufficiently, warm, thick gruel, made from oatmeal, should be given instead of mashes, and also a little oats mixed with dry bran in about equal parts. Those horses that have not purged sufficiently will have mashes and warm water as before. The stables will then be shut up till 8 p.m., when the horses which have been purging a great deal the whole day may have more gruel and half a feed of dry oats. The beds being made and the horses having been supplied with about half the usual quantity of hay, will be shut up for the night.

On the following morning the trainer expects to find that with all the horses the physic has stopped working. Such of the horses as have ceased to purge much the day before, and those that have stopped purging during the night, may have half a feed of oats while the stables are being cleaned and the beds made tidy, and be walked for an hour to give them an appetite. On returning they are to be groomed and fed as usual. Those horses which have purged a good deal the day before, and have not quite stopped purging in the morning, are to remain in the stables all day. They should be fed with oats and bran, dry and mixed, and have thick gruel to drink, and on the following morning may be taken out as the first lot were, and treated in like manner.

Gross lusty horses will be treated in the same manner,

except that they will have larger doses given them, six or seven drams, the first thing when they come in in the morning, after having been prepared by mashes the day before, as the physic takes a longer time to work them. It sometimes happens that the medicine does not work at all, or not in the usual time. Under these circumstances it would be dangerous to repeat the dose until after the lapse of a week, for it sometimes occurs that both doses commence to work together, and cases have been known in which they have killed horses. The above description of the mode of physicking horses is intended to apply to a stable which has completed the racing season, and of which the horses are being prepared for their winter training, but it applies also generally to all horses of the three kinds enumerated, except in the case of accidents, which will be treated of by-and-by.

When a horse has become stale from too much work and too little rest, as referred to earlier in this chapter, the advantages he derives from physic are of two kinds; he obtains rest without putting up flesh and derives constitutional benefit from its action in the following way: The stimulating effects of the physic promote the various secretions of the stomach, intestines, and the different glands of the body, including those of the skin; from its increasing, with the aid of exercise, the peristaltic motion of the bowels, the whole mass of those excretions become so rapidly removed by evacuation as to cause very considerable absorption to take place throughout the whole system. From this circumstance some little debility will of course be incurred, but the horse soon recovers from the weakness resulting from the operation of the medicine. His general habit of body, as well as his legs, will have become much cooled and refreshed, and it will be seen very shortly after the physic has begun to work that his legs have become clean, cool, and in natural shape; while to a certain extent he is both inside and outside lightened of flesh, in both of which respects the physic will have produced

most of the advantages gained by a sweat and by continuous work in clothing, and, after a while at walking exercise to recover his appetite, he becomes invigorated.

The change produced in a horse's constitution from the effects of medicine will have improved him in a remarkable manner; this will be shortly perceptible in his fresh and hearty appearance, and by that infallible indication of health, glossiness of coat. It has been remarked by keen observers that horses frequently show excellent form, and for which their trainers are often quite unprepared, just after recovering from an illness which is not severe enough to debilitate them excessively. It is the same after physic, which is artificially creative of illness. In both cases nature's successful effort to throw off poisonous matter or to remedy exhaustion is succeeded by renewed vigour, and a dose before a race, if the horse has time to recover from its immediate debilitating effects, will often return him a winner. The highest training ability is, however, required to produce such a result with any degree of certainty, and, except in the most competent hands, physic is a dangerous auxiliary in anything like close proximity to the event for which a horse is being prepared. The results obtained by physic may also be obtained by changing the food, and giving green stuff, which acts more mildly but in the same way, but the time, five or six weeks required, can seldom be spared, and the material cannot always be obtained.

When a horse has received an injury which causes inflammation, and necessitates a stoppage in his work, physic will be administered in a somewhat different manner. Let us suppose that a horse has been out to exercise as usual, and on his return appeared quite sound, as not infrequently happens; afterward it will be reported to the trainer by the lad in charge of him, or which occurs quite as often, the former as, according to custom, he examines the legs of his horses, will find that a leg is out of shape and that there is considerable

inflammation in the limb. Whatever may be the cause, whether the injury has arisen from striking one leg against the other, or from an over reach, or a slight strain of the tendons or rupture of the sheath that contains them, or from the horse twisting his leg in the stable, or from any other cause, the trainer will at once examine the horse at his leisure.

If he finds that the injury is very serious and one which precludes all possibility of the horse's fulfilling his engagements, he will at once throw him out of training, and, giving up all hope of bringing him to the post, apply the usual remedies. On the other hand, if it is not very serious, and he thinks he has a fair chance of rectifying the injury which the horse has suffered in time to enable him to fulfil his engagements, as soon as the horse has digested the small morning feed he will give him a dose of physic. As this cannot be assisted in its action by exercise, it may be a dram or a dram and a half stronger than he would have given under the circumstances previously described in this chapter, and the dose may be divided into two, one half given in the morning and the other in the evening. The objects to be attained by the administration of physic are twofold: to reduce inflammation of the injured limb, and to prevent the horse from putting up too much flesh or fat, internally and externally, during the unavoidable period of rest required to rehabilitate the limb. Rest is the principal agent which enables nature to perform that task, which hot and cold applications and lotions undoubtedly assist. As a general rule, the limbs of racehorses in health are not stronger or more enduring than is necessary to enable them to undergo the work of training; when, therefore, they are weakened by accidents, it would be unreasonable to expect them to bear, without injury, the extraordinary strain they must sustain if called upon to endure the increased work rendered necessary in order to get rid of encumbrances contracted during an enforced period of idleness. Therefore we call in the aid of physic to relieve them from

the additional stress which would otherwise be thrown upon them.

Just as with a locomotive which had sustained some not irremediable injury in an important part of its mechanism, which necessitated a stoppage, we should relieve it on starting up a severe hill of a portion of the weight it had to draw, rather than put on it the strain of overcoming the *vis inertia* of the whole train after the execution of temporary repairs.

Along with the physic, the injured limb will be treated at first with hot water, through the means of bathing and bandages, the former being applied three or four times a day for an hour at a time, and the latter during the intervals; and when the heat has completely disappeared from the limb cold lotions may be applied. In applications, hot and cold, the linen bandages should be wrapped round with oil-silk or gutta-percha cloth, to retain the moisture and prevent evaporation. As stated in the chapter on stable management, a cold-water soon becomes a hot-water bandage; and we depend on the ingredients of the lotion rather than on its temperature for the effect we expect to produce. A lotion of four ounces crude sal ammoniac and one ounce of sugar of lead, dissolved in three pints of vinegar and one of water, is an excellent astringent; but I have found a solution of arnica preferable to any other in cases where the skin is not cut or punctured, when it is liable to produce inflammation. It should be mixed in the following proportions: Tincture of arnica, five drams; water, one pint.

This application may be continued until the leg, after exercise, is cool and in good shape. When it is first observed to be in this condition the horse may be sent out to walking exercise, at first for an hour at a time, twice during the day, increasing the duration half an hour each day until he has his four or five hours of exercise. Great care must at this period be taken to prevent a relapse of the injury, which is likely to occur if the horse plunges or breaks away with his rider,

consequently he should have his walking exercise in a paddock by himself, or where he is not likely to be disturbed by other horses or by strange sights and sounds, and he should be ridden by a very steady lad, if necessary assisted by another with a leading-rein.

While the horse is at walking exercise, his legs are gathering strength and "hardening," which is not a very scientific term, but will express my meaning better than any other I can think of. At first, on return from exercise, the leg will swell, and this swelling will be walked down at the next exercise, recurring again with diminution, if the recovery is progressing favourably. When at exercise the horse should be dry bandaged. This secures two purposes: it saves the leg from being injured by a blow, and it affords support to the vessels and sinews that have been injured, besides supplying the necessary pressure to produce absorption. If the recovery does not progress so favourably as the trainer desires, and in that respect quickness may be the most important consideration, he will have recourse to another dose of physic, which will be better than risking a breakdown in the necessary recourse to strong work. If these directions are intelligently complied with, in most cases the horse will, at the proper time, be fit to fulfil his engagements and will have suffered very little deterioration. At some later period I propose to suggest, in the chapter on accidents, the course of treatment desirable for a horse that has sustained an injury more serious than that treated of above, and which has necessitated the abandonment of the engagements for which he was being trained. I need scarcely say that in all cases of injury the return to active work must be very gradual, and the work given must be of such a kind that under it the rehabilitation of the injured limb will be paramount to the consideration of fitness, because if the foundation of a work is unstable, the quality of the superstructure is unimportant.

CHAPTER IX.

LADS AND RIDING.

Town lads make the best riders—Apprenticeship: its advantages and disadvantages—Horses should be ridden by light weights—Qualities required in lads—Good riders invaluable—Lads should be taught *ab initio*—How to teach them—The horse's mouth—The whip—Good hands—Effect of a secure and insecure seat—Powerful bits should not be used—Means of controlling horses—The common martingale, running martingale, and gag-rein—Their uses described—Lazy horses—Hustling—Knowledge of pace—Gentlemen riders—Value of time in learning pace—Higher qualification of riders—Riding races—Faults of jockeys—Flogging—Admiral Rous on jockeys—Scrambling—Waiting races—Examples—Galopin and Lowlander—Lowlander and Hesper—Sharp turns—Starting—Fred Archer—Short distance riding—The best trainers turn out the best jockeys—Riding two-year-olds—Rous on whip and spur—Tired horses—Pace of the racehorse a mile a minute—Advantages of waiting—Jockeys should assist the starter—Not lodge unnecessary objections, and be honest and sober.

AS a rule it is found in England that the lads who make the best riders come not from the country but from the towns. The reason of this is twofold. First, they are generally more intelligent, and secondly, they are lighter and do not grow so heavy as country lads. These are two considerations that will greatly influence a trainer in his selection. The usual system of apprenticeship existing in England has its advantages, but also its disadvantages. Among the former is the assurance a trainer has that all the trouble of teaching the lad will not be sacrificed by the latter

leaving him when he has learned to perform his duties so far as to be of real assistance in the training of horses. Among the latter is the fact, which is not infrequent, that he is often saddled for seven years with an animal far more worthless and infinitely more mischievous than that which he has tried to be, so bad that he cannot win a selling race. In any case, whether he takes him for seven years or on trial, the trainer will prefer an intelligent and amiable countenance and small hands and feet. The first two will indicate a facility for learning his business and the last two an aptitude for growing small. It is very important that racehorses should be ridden in their canters and gallops by light weights—heavy weights tend to make them slow, although I do not think that extra weight within reasonable limits affects horses thus at walking exercise. He will also prefer the lad to be well-shaped, which denotes strength in proportion to build. He may also indulge in some preference as to moral character, but that is merely a matter of fancy; or as variation in morals generally takes the form of Butler's lines,

> "Compound for sins you are inclined to
> By damning those you have no mind to,"

he may be influenced in his selection by a mutual similarity, if he can discover it; otherwise I think it does not much matter, unless the boy "belongs to the church" and happens to be sanctimonious, when he is very likely to betray the secrets of the stable or commit some roguery or other, if temptation lies in his way, or if it does not; but I suppose such vices are reserved for a later period in life, and such precocity is happily rare. Boys who can ride well are invaluable in a training stable, and indeed training cannot be properly carried on without them. They must be carefully taught to ride, and *ab initio*. If they have never been on a horse before, so much the better; if they have ridden, they will probably have to unlearn before they can learn,

and it is much more easy to teach good than to cure bad habits.

When a boy is first brought into a stable the trainer should begin by making him useful in the performance of various tasks which must be undertaken by some one, and had better be performed by those attendants who have not sufficient experience to be useful in more important matters. He may carry water, run errands, assist in cleaning out the stables, and be taught the cleaning and care of saddlery and clothing, and if he has not acquired them already, he must be taught cleanly habits as regards his own person, for it is generally found that people who are slovenly in their personal habits are also slovenly in the performance of their other duties, and few things are more important in stable management than neatness and cleanliness. Boys should be given to understand that the care of individual horses is promotion which can only be conferred upon them when they satisfy their employer in other respects, and they will consequently look forward to having a horse of their own as a personal ambition. I may here remark that the responsibility of caring for any animal, even if it be one of the lower creation, by inducing a sense of responsibility, has a tendency to elevate the personal character of men; it sets them thinking and studying the welfare of another existence besides their own, and beneficially diminishes the stock of selfishness with which all human beings are well supplied on their start in life, and which exists in a larger degree early in life than later.

The first horse which is confided to a boy's care should be a quiet one—quiet to ride and groom. This sort of horse will give him confidence, which might be destroyed, or never acquired, by allotting to him one likely to frighten or injure him. And with horses, as with other animals, whether in the stable, the training ground or the racecourse, confidence is a quality which cannot be overestimated. I think that any one who has had much close experience must have been struck

by the wonderful instinct, or perceptive and reasoning faculties to which we give the name of instinct when it is met with in other animals than man, that horses possess, which enables them to distinguish those who are afraid of them from those who are not. So that you will see occasionally a man who can walk into the stable of a vicious horse strange to him, handle him and move around him with impunity, while with most others he will give way to his vicious propensities. It is the same in riding them. A resolute horseman who has confidence in himself will mount an animal that has been playing all sorts of tricks, and at a touch of his hand on the bridle he will walk off as quietly as a sheep. The confidence is mutual, and in all relations existing between the pair its result will be evident in increased efficiency. This is why a first-class jockey finds no difficulty in riding to the best advantage in a race a horse he may never have thrown his leg over before. Good riding while at exercise is, to be sure, of less importance than in a race or trial, nevertheless it will have great influence on the result of either, if continuously exerted, and the same may be said of other duties which a lad in charge of a horse has to perform.

At first it will be necessary to give a boy some instruction and preliminary practice on a quiet hack or an old steady racehorse, and the most important lessons will be those which teach him the position of his seat and hands. In respect of the former, the best is the hunting seat, and the best way of regulating the length of stirrup is to take the leather close to the catch between the fingers and thumb of the left hand, with the arm extended at full length, and bring the lower part of the stirrup iron with the right hand until it touches the armpit. In mounting the boy should take the reins in the left hand drawn through the fingers, and rest the hand on the wither, and he should be lifted by the foot into the saddle. Boys who are tall enough should practise mounting by themselves, for it is very in-

convenient when a boy becomes dismounted at exercise from some cause to remount him again. When seated in the saddle, the feet should be thrust into the stirrup irons as far as they will go, and the boy should be made to stand up in them, leaning his body forward, with his fork over the pommel of the saddle; his breeches, being loose, should lightly brush the top of it as he is directed to move his body forward and backward.

The length of stirrup thus obtained answers the purpose generally, but when the boy gets well accustomed to riding, he will exercise his own judgment and consult his own comfort in this respect. The reins should be gathered nicely, with a light feel on the horse's mouth, in the left hand, which will rest on the pommel, and should be knotted behind the grasp, so as to give the boy a firm hold on the horse's head when he finds it necessary. The right fingers should then grasp the right rein or reins forward of the left hand, and the boy should sit upright and well down in the saddle, keeping his knees and the calves of his legs tightly pressed to the flaps. His toes should be turned in as much as possible, which will enable him to keep the spurs out of his horse's flanks when he is sufficiently advanced to wear them; and his feet should be rather forward of the perpendicular, with a firm tread on the stirrup irons. His elbows should be kept close to his side, and his hands down. A kick with the heel will generally be sufficient notice to the horse to move on, accompanied by a slight give and pull of the reins, and, as the horse moves his head backward and forward, the arms should give and take, pivoted from the shoulder. At first the boy will be allowed to take walking exercise only, and then trotting, but he should not be permitted to rise in the stirrups for the present, by which his seat will be better formed, and his body kept more upright. When the trainer considers that the boy is sufficiently practised in walking and trotting he may be allowed to canter his horse, but the first lessons

should be taken on a steady one, not likely to run away or throw up his head, and with the instructor only by his side. When the horse canters the boy should lean forward, keeping his legs perpendicular, and his hands down on each side of the horse's withers, and he is not to remove them from that position except for the purpose of taking a pull on the horse if the latter is making too free in the gallop, when he should first give with the reins, and then take a pull by leaning his body backward, pivoted at the spot where the knee grasps the saddle. By giving and taking as described, the horse's mouth is made sensible to the bit, and he is restrained more easily in his gallop than he would be under a dead pull. When perfect in riding by himself, and when he is able to pull his horse up, the boy should be put with a string of horses, and directed to keep a certain distance behind a certain horse; but to prevent the horse he is riding striking into the heels of the one in front of him, he should lie a little out of the track of the latter.

He should now be directed to go up to the horse in front of him and lie alongside of him, neck and neck, now forging ahead of him, now pulling back to his companion's girth. When he has acquired confidence and can perform the task set him with credit, he may be put to ride a more difficult horse with the same instructions given him; and if he acquits himself well, he may be put on various kinds of horses to teach him the difference between one and another. A boy who has confidence in his seat and in himself, usually begins to show it by the careless attitude he assumes in sitting a horse at walking exercise, by turning round and talking to his companions, putting his right hand on the horse's rump and riding with a loose seat. In dismounting, he should take his feet out of the stirrups, throw the right leg over the pommel, and slide to the ground, retaining at the same time the reins. Racehorses in galloping are apt to put their heads down between their knees, and one advantage of holding the reins with the hands

on each side of the withers is that when the horse does it the weight of his head will be checked almost altogether by the reins, which are merely kept in position on the withers, the boy's hands being subject to very little strain, otherwise a headstrong horse would easily pull a light boy out of the saddle. When a horse tries to get his head down and fails to do so, he is checked in his gallop, and after a few trials will give up attempting it.

One of the worst things that can happen to a horse and his rider is that the former should succeed in throwing the latter. Independently of the injury likely to accrue to either from the fall or by the loose horse galloping wildly about with his legs perhaps entangled in the reins, along the hard road, with the probability of coming in contact with a cart, or a post, or some other object, an event of this kind becomes a precedent which the animal is very likely to follow, and practise on occasions when the trick might be productive of serious consequences. Boys also are apt to become frightened and lose confidence and nerve if they make the acquaintance of mother earth under these conditions; therefore I should be very careful not to put a lad on a horse that was at all tricky, or that he could not hold, until I was pretty certain he could ride him and hold him well in all his paces. But it is necessary he should be able to ride all kinds of horses, and, until he can do so, he cannot be said to be of much value in a racing stable. I do not profess in these pages to teach the art of riding, but merely to offer some practical suggestions by the aid of which it can be attained, and which I think can best be done by practical instruction, and by observations of good models. Very few can hope to attain the perfect seat of Tom Cannon, the fine judgment and hands of John Osborne, or the all-round excellence of the late Fred Archer and George Fordham; but I think it not unlikely that lads who have the advantage of such specimens of horsemanship daily before their eyes will turn out the

best jockeys; indeed I am sure they will. It would be desirable that, besides telling lads what to do, they should be shown how to do it, and corrected by example when they do wrong. And as most boys are desirous of mastering any difficulties, whatever they may be, where books are not concerned, and are much more capable of learning from the eye than from the ear, it will be advisable that the instructor should ride beside them and enforce what he has told them by putting it in practice himself, and seeing that they do likewise, and that he should be the best horseman available. If lads are all taught to do the same thing, in the same manner, the horses will all know what is required of them, no matter which boy is put up, and will do their gallops and exercise with more comfort and advantage to themselves and all concerned; whereas if each rider has a different method and his actions represent different intentions, horses become bewildered, and, not knowing what is required of them, fail in that good understanding which should exist between horse and rider, and which is not only desirable, but necessary to successful training.

The mouth is the organ by which the intentions of the rider are principally communicated to the horse, although the voice and heel participate in informing the one of the wishes of the other.

The whip need so rarely be used that it might be dispensed with altogether with great advantage. The bit, reins, and hands are, of course, the medium of communication between the rider and the mouth, and what is termed "good hands" means the faculty on the part of the rider of conveying the information intended. I need scarcely say that no amount of tuition will make naturally bad hands, that is, those that are clumsy and insensitive, into good ones; but a good deal may be done toward improving them. More than that, a bad, that is, an insecure or ill-poised seat will often neutralize naturally good hands. One of the reasons why women in general have such good hands is that

their seat is so well poised and so secure; but the principal cause is the delicacy of their touch and natural sensitiveness, and I think I must add to these qualities the finer temper they exhibit with all animals, except, perhaps, sometimes those with whom they are mated. I think many of my readers must have met with cases where, in the hunting field and elsewhere, horses, who with men were in the habit of playing all sorts of pranks, but under the gentler guidance of women, quite gave up their bad habits, in some instances I have noticed only to resume them when breeches were substituted for a skirt.

The importance of gentleness, whereby I by no means intend to include want of firmness, in using the reins, should be strongly impressed upon lads, and also that they are never to take a sullen, dead pull on a horse's mouth, whereby its sensitiveness is destroyed, and the contest degenerates into one of physical strength, in which a weak rider seldom gets the best of it. Neither should a horse be stopped by jerking and checking at his mouth, which hurts him and rouses his passions. The lad should be told, when he wants to check a horse, to take a gentle and gradual pull, and then to give with his hands. If this does not answer the purpose, he may use more strength, but in the same manner. In many cases slackening of the reins will stop a horse more than pulling at them; and, indeed, the usual way of starting a horse is to pull at his mouth. By this means the horse soon becomes aware of what is required of him.

It is, as I have said elsewhere, undesirable to put powerful bits in the mouths of racehorses, that is, bits which give them pain, such as curbs, chiffneys and the like, and more especially to trust them in the hands of inexperienced lads. A good jockey who has fine hands may be trusted with almost any bit, but of such I am not now speaking. Nevertheless, I think the best jockey, though he may do no harm with a severe bit used occasionally, is far better without it. At the same

time, as it is necessary that horses should be ridden at exercise by light weights, these must be supplied with some means of controlling them, and compensating for their own want of strength, preventing them from running away and its accompaniments, and from throwing their heads up or down, or from galloping any faster than the trainer considers necessary.

Martingales, running martingales and gag reins, with smooth bits, will be the best for these purposes. These reins have been fully described in the chapter on clothing, and it will suffice to say here in respect of them, that the common martingale should be fixed so that the rings are at such a distance from the girth that when the horse's neck is extended in the act of galloping the martingale rein shall lie alongside of the free rein, and not be dragged down, forming an angle with the free rein (this latter arrangement partaking of the nature and uses of a running rein), so that the rider can pull on both evenly without inconvenience to the horse as long as he keeps his head in its natural position. In this form, the martingale only prevents the horse from throwing up his head. If the arrangement be as otherwise suggested, the martingale rein should be knotted and left loose on the horse's neck, to be used as occasion requires.

We will suppose that the lad has mastered the art of riding sufficiently to be able to ride a quiet horse, walking, trotting, and cantering or galloping, and that the horse he is now promoted to, being a free goer, and one which he cannot stop with the ordinary rein and martingale, is furnished with a running martingale, the rein knotted evenly and lying on the withers. The instructor riding alongside of him, will caution him not to use this rein when it is not absolutely required, that is, until he can no longer control his horse without its use, and to use it no longer than is necessary to stop the horse; then, dropping it, to resume the ordinary position with his hands. He should also be told that in using the rein he must do so gradually, and not with a sudden pull, which might throw the horse out of his

stride, and cause him to stumble and change his legs, perhaps to hit them. He may first explain the use of the reins generally, and then show him how to use each, thus:

"The free rein is intended to hold your horse with when he is going to your liking, and the martingale will assist you in doing this by preventing him from throwing his head up, which would cause you to lose command over him. You should hold both these reins exactly the same length, so that both will have an equal pull on the bit. The third rein, or running martingale, lying knotted on your horse's neck, you should use only when you cannot hold him with the two reins now in your hand. It gives you power over your horse in two ways—first, by acting as a single pulley, it doubles the force you use in pulling on it; that is to say, the same force is exerted from the fixed end attached to the girth as is exerted from your hand to the bit; secondly, as the fixed end is below the level of the horse's mouth, when the lower part of the rein from the girth to the bit is shortened, the horse's head is drawn down, and he finds it more difficult to run away. When you pull at this knotted rein you must let go the others with your right hand and take it up with that, and when you pull, you must pull gently and gradually, not exercising your full strength until you find that the horse does not shorten his stride, when you must pull harder, but in the same manner. The reason you do not pull suddenly, with a jerk, is, that if you did, you would be likely to throw the horse out of his stride, and make him change his legs, and perhaps hit them, or make him stumble. When you are pulling at the knotted rein, give and take with it, and repeat this until the horse shortens his stride and comes to the pace you want him to go. When this happens, drop the knotted rein, and take hold of the reins on the off side with the right hand down on that side of the withers, as before. You should take a pull with the knotted rein, and indeed with the others too, by lean-

ing back in the saddle with your body pivoted at the knees, with which you grasp the saddle flaps. Now let me see you do this as I have told you, but first watch me doing it."

If the horse is in the habit of throwing his head very much down, "boreing," as it is termed, the gag rein will be substituted for the running martingale, and he will explain the use of this to the boy as follows:

"This is a different sort of rein from the running martingale, though it looks nearly the same, and acts partly in the same way; that is, by giving you double power when you pull on to it. But you will see it is fixed to the girths much higher up than the other; consequently, when you pull on it, instead of pulling the horse's head down, it pulls it up; and, the more you shorten the lower part of the rein, the less will your horse be able to get his head down. You must pull on it exactly as you would have pulled on the running martingale. When you have used this rein a few times, you will observe that your horse, finding it is useless to attempt to get his head down, will generally give up trying. If you find him constantly attempting it, gather up the gag rein in your hand with the others, but looser. As your hands are fixed on each side of the withers, very little force will be required to hold up the horse's head; and when he finds the rein tightening on his mouth, he will remember the lessons you have given him before, and cease to attempt it, and you will not have to change your hands or sit back in the saddle. Just watch me and then try it yourself."

There are, on the other hand, lazy horses, the reverse of "free going," which it is often very difficult for a lad to get along with, especially in clothing. I have said elsewhere that a pull on a horse's mouth is often, and indeed almost always, a signal for him to move. I presume this is merely a matter of habit, for there is no reason for supposing that it is naturally so. Probably the first reason for this artificial signal is, that when a horse is standing still, the rider generally slackens his

reins, while he is perhaps talking, and, when he has made up his mind to move on, gathers them up, thereby slightly pulling at the horse's mouth, and at the same time kicks him with his heels, and makes the sound difficult to describe in writing, which all horsemen are in the habit of using when they wish to proceed, and which has the same effect in starting a horse as "whoa" has in stopping him. Probably, also, the action of pulling at the reins makes the horse restless, as does anything which interferes with his mouth. However that may be, it is the universal practice with horses in training to "hustle" them, by which term is meant that action of the rider when, instead of keeping his hands still, he raises them, and alternately gives and takes with the reins by moving them in a circular direction from left to right, or right to left. The boy we are instructing knows now the use of the various reins, and how to keep his hands, and can sit quietly and firmly in the saddle. Of course, too, he understands that when he pulls on the right rein the horse will go to the right, and when he pulls on the left rein he will go to the left. He knows what strength it is necessary he should apply with any rein to shorten the stride and stop the speed of his horse. He knows, too, how to keep his horse's mouth "alive" by giving and taking with it. His exertions so far have been confined to retaining his seat and restraining his horse. But these are comparatively easy matters compared to the task of taking along a lazy horse, especially in clothing, and making him keep his proper place in a string, or gallop at the pace that is required of him. Some horses doing their work in clothing are unambitious or lazy, and do not care whether others pass them or not.

The instructor should give a boy a horse of this sort and say, "Now you must keep along with me, and pass me when I tell you to. If you find you cannot, hustle your horse as you see me doing. Sit upright and well down in the saddle, raise your hands off the withers, first giving a little to him, but without the reins being

slack, and then, having a good hold of his head, give him three or four hustles like this, but never let his head loose. Kick him at the same time with your heels, but let your knees be tight to the saddle. If you find this won't make him go up to me, shake the switch you have in your right hand at him or strike him ; you can't hurt him, because of the clothing, but the noise will frighten him a bit, and he will remember that he has had a whip along his ribs before now." Following these instructions, the boy will generally find that his horse will go up to the other one and pass him, but the moment he puts his hands down he will fall away again, in which case he will have to go at him again in the same way. If the boy can reach the horse's skin with his switch, or if the horse be not clothed, he may give him a sharp reminder along the ribs or shoulder, the latter for preference, as it does not disturb his seat so much, which will generally make him stretch out. I am averse to shouting at a horse, because in a race where others are shouting, and a horse is difficultto hold, it may, if he has been taught that shouting is a signal for him to increase his pace, tend to make him break away, and go faster than his rider wishes him to go, and any fighting between horse and jockey, prejudices the horse's chances of winning a race. Jockeys are very cunning and tricky, and I have known them in a race to start off a horse difficult to hold, or frighten what is called a "jade," ridden by another jockey, by shouting ostensibly at their own horse, and by striking their boot with the whip. In riding a sluggish horse at exercise, it would be well to keep him about head and head with another horse, as he is likely to show a little emulation under these circumstances. With all horses, and especially with free-going and flighty ones, lifting the hands from the withers, and moving them in the manner described, is a signal for them to increase their speed, and to challenge a horse in front of them, and therefore, if the rider does not want him to do so, he must sit quiet.

We will suppose that by this time a lad has learned how to ride the various kinds of horses in their exercise, and that he has a sufficiently secure seat, and, above all, confidence in himself. The next thing will be to give him some knowledge of pace, that is, of the rate at which his horse is going at any particular time. The acquisition of this knowledge is most important both in riding horses at exercise and in a race or trial, and without it no one can be a successful jockey. I think most of us who have trained and ridden horses will remember that sometimes when we thought that we were going at a slapping pace, we have been reminded that we were not going nearly so fast as we imagined. This is especially the case when riding a horse in front of others, and by himself, which has given rise to the saying, "Anything can go fast past a post." I remember being very disagreeably reminded of this once, when I had had very little experience of riding, and was leading within a hundred yards or so of the winning post, thinking that my horse was doing his best, and found myself passed by another whom I knew perfectly well I could beat. I managed to regain the length or so he had passed me, and, rather to my surprise, made a dead heat of it, winning easily in the run off, having profited from the lesson I had learned. The most amusing part of the affair to me was that I got credit for fine riding, and in the run off the other horse was made favourite, whereas I knew perfectly well what a blunder I had made. Gentlemen riders on the flat seldom have sufficient practice to acquire a knowledge of pace, although over a country they are fully the equal of professionals, which probably is caused, in a great measure, by their practice in the hunting field. The usual allowance of seven pounds is quite insufficient, except in rare instances, to bring them level with professionals on the flat. A knowledge of pace is principally "picked up," and not taught, as it should be, and the terms used to describe pace are very loose and inappropriate—half speed, three-quarter

speed, rough up, Yorkshire gallop, etc., may mean almost anything. If a horse was sent a half speed gallop, that is, taking double the time in which he could do a distance, the pace would not deserve the name of gallop at all. I think that the best means of indicating the speed of a gallop is by naming the time. I have always adopted this plan for my own edification. Thus, if the course was a mile, I should call two minutes a good exercise gallop, improving to the wind and enlivening to horse and rider, and it is so easy to tell your boy on pulling up, and so easy for him to understand, that he has taken 10 seconds too much, and must quicken his pace the next time. Of course, there are certain circumstances connected with a horse's condition that should be allowed to influence a rider during the gallop, and which may lead him to vary the pace; but he must be an exceptionally good judge, and have a fair knowledge of training. If you say to such a one on pulling up, "You did the last part of that gallop too slowly; the distance took you five or six seconds more than I intended it to be done in," he may reply, "The horse isn't quite as right in his wind as you think, sir; see, he has not cleared it yet. I thought he was a little distressed, so I eased him up at the three-quarter mile." A trainer who has got a rider of this kind has got a jewel, but in a general way the trainer knows more about his business than the rider, and he will naturally desire to have horses taken along at the pace he has decided upon. Therefore I consider time the best medium wherewith to explain his wishes to a rider, and that one most readily understood by the latter, and best qualified to make him a judge of pace. If the method I have suggested be properly carried out, such boys as are capable of learning, will soon become fair judges of pace. Higher qualifications are necessary to render a rider an excellent judge of pace, in reference to his own horse—to enable him to judge when the pace is telling upon his mount, and consequently when it is necessary to ease him a bit, even at the cost

of a length or two, so as to allow him to recover himself, and thus to nurse him for a final effort, where that effort must be made, namely, near the winning-post; or, on the other hand, if he finds his horse full of go, and perhaps sees other dreaded competitors toiling a bit and their riders uneasy, to take liberties with him, and increase the pace so as to make them give way beyond subsequent recovery. This leads me to the few remarks I have to make on the riding of races, for I think the present opportunity a better one than may subsequently be afforded me. It is somewhat a delicate task for a person who is not a professor of an art to lay down rules for the guidance of others who either are, or think they are, or who hope to be, professors; and if any should silently or audibly protest against such an attempt as unwarranted, I may remind them that "lookers on often see most of the game." I think this is particularly true of observant race-goers, provided they are not blinded by prejudice, and I have sometimes, not often, been struck by the sagacious remarks made in private by turf reporters on the riding of jockeys in certain races, when I was perfectly aware that these gentlemen had very little knowledge of horseflesh, or of racing generally. It is, however, from long and acute observation, quite patent to them, what a first-class jockey would have done under similar circumstances, and they compare, and frequently with great judgment, what has been done with what might have been done.

There are two faults, with all but first-class jockeys, seen in the riding of many of our horsemen in England, but far more prevalent in America, what I shall call "scrambling," and abuse of the whip. Let me take the last first. It is most painful for me, and I am sure it must be painful to any gentleman or good sportsman, to see a number of horses mercilessly flogged when they have no possible chance of winning. I sometimes think that this brutality is generated by the fear an inferior jockey has that if he is not seen flogging his

horse, he will be suspected of pulling him. But whatever may be the cause, the practice exists to a lamentable extent in America. Reading a book on the horse, by Lawrence, published sixty years ago, I find the same strictures on this practice which appears to have prevailed widely in his day, though I am glad to say, while it still occurs occasionally in England, it does so to no very great extent; the opinion of the public, and of owners and trainers being dead against it.

But independently of this, the whip is used everywhere too freely, and to the detriment of a horse's chances. The late Admiral Rous made the rather sweeping statement that there were only six jockeys in England fit to be trusted with a whip, and this is much nearer the truth than that half of them are fit to be entrusted with one. Jockeys, however, consider it a slur on their professional reputation to deprive them of that questionable auxiliary, and, if it is refused to them, often manage to get hold of one before the start. I remember once reluctantly acceding to a lad's request when he was riding a mare of mine, and allowing him to carry it on his promising not to use it. He lost the race in consequence, for the animal, though having a lot in hand, was one of that sort that would race with a donkey, and the boy, within two hundred yards of the winning-post, hearing a horse coming up behind him, raised his whip, let go of the mare's head, and she sprawled right across the course and was beaten a neck, with about twenty-one pounds in hand. Thus it is that races are often lost by allowing a whip to jockeys who cannot use it with discretion. It is very seldom, indeed, that a whip is wanted at all, or that it cannot be profitably dispensed with; a couple of cuts may be useful in rousing a lazy horse at any part of a race, or a few rib-roasters for punishing one that misbehaves himself, but, as a general rule, the spurs will answer just as well, with this advantage in their favour, that a jockey need not let go of his horse's head.

By "scrambling" I mean pushing and flurrying your

horse to make him keep his place at any part of the race. A looker-on will often see half a dozen jockeys with there arms and legs going like windmills as if, instead of there being one winning-post at the end of the distance, there was a number placed at every hundred yards. Someone must have the best place and the best start in every race, and it is obtained by good luck, and skill combined; and, having lost it, the jockey should remember that frequently in endeavouring to retrieve his position quickly, he will do more harm than good, and, by bustling his horse, take more out of him than he has gained, and render him unable to make an effort when it is most important that he should do so. A jockey should likewise remember that if a horse runs the beginning of his race very fast, he is not likely to finish it very fast. I remember very well seeing the celebrated match between Galopin and Lowlander at Newmarket. The former, as everybody knows, was the best horse of his year, and winner of the Derby; the latter was considered to be the fastest horse in training. Fordham on Lowlander made play at a terrific pace, and for six furlongs (the distance was a mile) Count Bathyany's horse had a difficulty in living with him, but after that distance had been run he gradually overhauled him and won by a length. Judge Clarke, who was in the box, said it was one of the slowest finishes he ever witnessed. But if a speedy horse is left a length or two behind, and allowed to settle down into his stride, a clever jockey will drop down on to his horses near the winning-post, and snatch a victory out of the fire. At the risk of being tedious, I am tempted to give an example to illustrate my meaning. The same horse, Lowlander, was engaged in a weight for age race at Newmarket, winner to be sold for 1000 sovereigns, if not to be sold to carry 7 lbs. extra. Of course Lowlander was not to be sold, and there remained in only one other horse, a three-year-old called Hesper, who had belonged to me during his two-year-old career, and was sold at the sale of my stable the November before. The

trainer of his new owner, Captain Lane, told us that they had tried the horse and found him no good; but as I was perfectly aware how good the horse was, I tried to buy him back, and should have done so at a reduced price had his owner been at Newmarket, but, unfortunately, the trainer could not close with my offer without communicating with his employer. I was of opinion that Hesper was nearly as good as Lowlander at weight for age, and could certainly beat him if properly ridden at a difference of 7 lbs., but I was also aware that if Hesper had not changed since he was a two-year-old, and if he was hustled at the start he would not show his true form, for I had seen him beaten in trials and races which proved afterwards to be all wrong, from the above cause. Consequently, at the suggestion of my trainer, the trainer of Hesper consented to put up Constable, who had ridden the horse before in trials and at exercise, and knew his peculiarities. Constable had very fine hands, which suited the horse's delicate mouth. C. Blanton, when my trainer told him that his horse would be beaten, thought he had taken leave of his senses, and so probably would "the talent" have done, for they laid odds of 12 to 1 on Lowlander. Hesper, who made a waiting race, to the consternation of layers of the odds, was seen to creep up to his antagonist about a hundred yards from the winning-post, and, notwithstanding the most determined efforts of the latter, beat him a neck. On being put up for sale Mr. Baltazzi bought him for 2500 guineas. As a curious termination to this episode, a few weeks later the two horses met again at Newmarket under exactly the same conditions and with the same result, except that Hesper won a length, and was bought by Captain Machell for 2000 guineas, after which, I need scarcely say, no mistakes were made with him, and he won a large number of races. The fact that two trainers of good repute had a horse in their stable who, if not in the first class, was certainly at the top of the second, and that both were persuaded he was a bad one, reflects little credit on the judgment and shrewdness of either.

There is another moral to be learned from this story—never part hastily with a horse that has shown good form at any time. There may be causes of disappointment that are removable or remain undetected, as in this case, and a man looks very foolish when he is beaten by a cast-off that never entered into his calculations when making a forecast of the chances of his horse in a race.

In riding on courses with sharp turns jockeys should remember that very few horses can cling to the posts the whole way round them. If they are close to the rail when commencing the turn they will generally be wide on completing it; consequently a jockey who desires to take the inside place from a horse in front of him will do well to pull out at the beginning of the turn, and, if his horse has the necessary speed, he will easily take the inside place when the other goes wide.

At the start, a jockey should keep his eye on the flag in front of him, his ears wide open, and his attention concentrated as much as possible on his own horse; he should not stare about and watch the movements of other horses. He should endeavour to start at least from a walk, and not from a halt, so that his horse will be quicker on his legs. If he can jog up into line, all the better, and should he in this case start a length or two behind the rest he will be in front after a few strides. Although this latter is, to a certain extent, a flying start, it is seldom objected to by the starter, especially if the jockey gives him no trouble. The late Fred Archer used constantly to start in this way, a little behind the rest of the horses. "I never have any trouble with Archer," said Mr. McGeorge to me one day, "he is never too much in front, generally a bit behind the line, and never complains of being left. He often says to me, 'Never mind me, Mr. McGeorge. If I am left behind, it's my fault, not yours.'" But if he was a length or two behind at the fall of the flag in a short race, he was generally to the front in the next hundred yards. Some horses in a race where there are many starters will always be crowded out, or shut in. The fault of inexperienced or inferior

jockeys is that they are too anxious to get through, and, not making their calculations nicely, fail to do so, and then have to try over again, by which many a race is lost. They should always bear in mind that as the race progresses there is more room in front, because the greater number of competitors drop back and make room, and towards the end of the race they are less likely to be disappointed.

'Contrary to general opinion, I consider that racing over short distances requires higher qualifications in a jockey than over long distances. To be properly carried out, it requires fine hands, presence of mind, and great quickness of hand and eye and ear; for whereas a mistake may be condoned in a long race, it is often fatal to success in a short one. In the former, a jockey, by sitting still and allowing the natural powers of his horse to develop themselves in the running, may retrieve a very bad start and return his mount a winner if he has a few pounds in hand, whereas in the latter it is likely to be fatal. And, if I had a fortune dependent on the result of a race, short or long, I should be more careful to select a first-class jockey for the former than for the latter, though, of course, I should be desirous of getting one for both. If it were possible to establish a school where they might be educated, not only in the details of their profession, but also in other matters which tend to elevate the character and enhance the utility of youths destined for any profession, that would be the best way of improving the riding and reforming the morals and manners of jockeys; but the practical difficulties which such an institution would have to contend with would, I fear, be too great to allow of its success, and I think we have to fall back on the training stable as a school. Under these circumstances what is more important than the education of the schoolmaster, or, in other words, the trainer himself? Are there many of our trainers sufficiently educated to take charge not only of horses, but also of young boys, and to communicate to the latter such information as they ought to possess?

I have certainly observed in England that the most respectable and best educated trainers are not only the most successful, but have the best servants in their employ and turn out the best and most honest and the most respectable jockeys.

Returning to the question of riding, it is especially important that two-year-olds should be ridden in their early races by good jockeys. They do not get on their legs so quickly as older horses, and take more out of themselves when they are hustled. When there is an exception to this rule, it will generally be found that the horse wins most of his early races, and then falls off as the season progresses, not because he has deteriorated, or the riding has fallen off, but because others have improved in that particular, and consequently he no longer retains the advantage which was the cause of his success. The above applies more particularly to fillies, who are generally quicker from the slips than colts in their early career. There are so many cases in point that it would take a page or two to enumerate them. Racing men in England will remember in the last decade or so Cashmere and Coronella, who were invincible in their early career, and who, though of different years, curiously enough, first met their conqueror over the T.Y.C. in Galopin.

Admiral Rous, in his book on racing (I quote from memory), says that hundreds of races are lost by the use of whip and spur, while hundreds are won by a judicious pull. Except when a horse is manifestly so superior to his antagonist that he goes well within himself, there is rarely a race where he does not require to be steadied by a judicious pull. On the other hand, there are few horses that could win a race in good company if hustled from start to finish, or ridden with a loose rein. When a jockey feels his horse falter from any cause, whether distress or otherwise, he should take a pull on him, even at the cost of losing ground; the horse may then, and probably will, recover himself, begin again, like a giant refreshed, perhaps drop down

unexpectedly on the leaders, who are beating themselves in rivalry, and pass them on the post; for, as I have said before, it is astonishing how slow tired horses often go at the end of a race, and how easily they are often beaten by one that, having a bit left in him, comes with a rush at the finish at a speed which he may be only able to maintain for a few yards. It has been estimated that a racehorse, *during some portion of a race, attained a speed of nearly a mile a minute*, an estimate which, if formed in bygone days, may have given rise to the story of the fabulous performances of Eclipse and Childers. There is nothing very unreasonable in the estimate when we consider that a man can run a hundred yards at the rate of 2:42 7-10 to the mile; and I am sure many of us have in horse races seen some finishes where the winner overhauled the leaders at a rate of speed which seemed twice as fast as that at which the beaten ones were going.

Nevertheless, lest this statement should seem at first sight incredible, and startle the reader by its boldness, a reference to recorded American time and the increased rate as the distance run decreases, will, I think, serve to bear me out. In the following table two things are apparent; one, as might have been anticipated, that the rate of speed is increased as the distance is decreased; another, that the percentage of increase is greater, or in other words, the rate per mile is shorter in proportion as the distance is decreased. As the record is only available for one-quarter of a mile upward, we have no reliable data whereon to determine the rate per mile for a shorter distance; but reasoning from analogy, or, perhaps I should say, from geometrical progression, we may, I think, fairly assume that the percentage of decrease in the rate per mile is greater as the distance is shortened. Now in the following table I have allowed an increase in speed of only 10 per cent. for the shorter distances, which is the percentage of increase between half and a quarter of a mile.

	Record. Seconds.	Rate per mile. Seconds.	Decrease in rate per mile.
2 miles	207	$103\frac{1}{2}$	——
1 „	$99\frac{3}{4}$	$99\frac{3}{4}$	$3\frac{6}{10}$ %
$\frac{1}{2}$ „	$47\frac{3}{4}$	$95\frac{1}{2}$	$4\frac{3}{10}$ %
$\frac{1}{4}$ „	$21\frac{1}{2}$	86	10%
$\frac{1}{8}$ „ or 220 yards ...	$9\frac{67}{100}$	$77\frac{4}{10}$	10%
$\frac{1}{16}$ „ 110 „ ...	$4\frac{35}{109}$	$69\frac{66}{100}$	10%
$\frac{1}{32}$ „ 55 „ ...	$1\frac{96}{100}$	$62\frac{694}{1000}$	10%

So that we come down to a speed for a few lengths, say seven or eight, of close upon a mile a minute. Now, if the records of men's running are studied, it will be seen that the increase of pace at 100 yards is 64 per cent. over that at a mile, wherefore I do not consider it unreasonable to suppose that at the same distance the pace of a horse can be increased 40 per cent.

The fact is, that it takes the same amount of muscular exertion for every horse evenly weighted to compass the same distance on the same course, and one who has drawn heavily on his resources in the beginning has less reserve at the end, while it is generally admitted by experienced jockeys and racing men that the horse who makes a waiting race has the best of it, perhaps, in some measure, because his rider sees what is going on in front of him.

And the reason why I have gone into these calculations, or speculations, if it pleases the reader better—for there is both calculation and speculation employed in arriving at the conclusion—is that I want to impress upon jockeys more forcibly what I have tried to impress on them before, namely, that the loss of a few lengths at the start, or in the early part of a race, is one which need not concern them so very much, and that instead of endeavouring to regain it before their horse has settled well into his stride, they can, if they nurse the animal, reasonably expect to regain it at the finish. In other words, what they have deemed a loss may prove a gain, and, by being forced to make a waiting race, they may be successful when otherwise they might have failed.

In racing on undulating courses, or where the conditions of ground are favourable to any particular horse, the rider of that horse should always take advantage of those conditions. Thus, where his horse has fine shoulders and good legs, he may take his opponents down hill on the hard ground at a pace which will rattle them, and do his own mount no harm; following the same policy if his horse likes a hill or heavy ground. There are often, also, certain portions of a track upon which a horse has an advantage over others, and the jockey should endeavour to obtain this position as soon as possible.

A jockey ought further to conform scrupulously to all the regulations, and especially to pay attention to and assist the starter in his difficult task, and he will find this line of conduct an excellent investment; because human nature is pretty much the same in official as in unofficial persons, and the former will generally be glad to help him out of any difficulty if he so regulates his behaviour, and helps him.

Jockeys should be very careful not to lodge objections against winners unless they have been actually prevented from winning. A jockey who seldom objects, when he does has a much better chance of sustaining his objection than if he is constantly fancying himself wronged; nor should he ever lodge an objection unless for the benefit of his own mount; or where, if he is sustained, it will be of advantage to another horse, and not to his own.

I need scarcely comment on the desirability of honesty in a jockey, but I may draw attention to its value. Coupled with skill, it insures to him many and important mounts which would not otherwise have been offered to him, and contributes largely to fill his exchequer. The question, "Is he to be trusted?" is nearly as frequently asked as "Can he ride?" for in the ranks of jockeys there is a great deal, if not a sufficiency, of talent; while many lie, unjustly it may be in some cases, under imputations which relegate them to shoe leather when they might have been in the pigskin.

Sobriety is another point upon which there can be no

question. Drink destroys the nerve and increases the weight; the absence of one and the presence of the other being among the greatest evils which beset a jockey.

There are a good many minor points about riding, whether in gallops or racing, that a jockey will learn through experience, but he will be none the worse for being acquainted with them beforehand, and he can then compare his experience with his information. One of these concerns tired or distressed horses. When a horse goes with his head bent well into his chest, he is never distressed, or in other words he is full of running; on the other hand, when he stretches out his neck, reaching as far forward with his head as he can, he often does so from being tired. This may have been noted in human beings when they yawn, which is an evidence of being tired. The horse probably does so in order to free the windpipe and endeavour to inhale more air, but whatever may be the reason, it is a sign of distress. This is why it is commonly said among horsemen that the neck tires first.

Horses never breathe through their mouths, but they frequently run with their mouths open when full of running; when distressed they close them. When they blow their noses in galloping they are in good wind, and, as I have said elsewhere, blowing in this way after a gallop shows that the horse has recovered his wind; that is, the lungs have recovered from the effect of exertion, and the sooner they blow the better is their wind.

An animated countenance and pricked ears are signs that horses are not distressed; but ears laid back is not always a sign of being tired. The ears of the horse are expressive of many feelings, and convey pleasure and pain, as well as anger. To one who has been much with them they afford an excellent index of mind and health.

CHAPTER X.

BREAKING AND TRAINING OF YEARLINGS.

Early training condemned—Time for breaking—Should be done carefully—Effects of bad breaking never obliterated—How to break yearlings—Boots always used—Riding yearlings—Leading yearlings—The proper kind of work—Yearlings to be classed in lots for exercise—Progress should be gradual—Force should never be used—Keen intelligence of horses—Asheton Smith on horses and dogs—Backward colts—Teaching colts to race.

THE early breaking and training of yearlings is to be deplored, whether it is caused by the fact of entries or forfeits being declared during the summer, which induces the trials of yearlings before that time, or for the satisfaction of the owner. It may be assumed, however, that the practice would not exist but for the former cause. All rules of this kind, whether they effect the structure of a yacht or the trial of a yearling, by inducing certain ill-judged modes of procedure, have an evil effect on the development of any national pastime, and indeed on any of the productions of man, unless they are closely in conformity with the requirements of nature and art; and these remarks will apply with force to the arbitrary date fixed for the age of the thoroughbred, as I have asserted in another portion of this work, which, instead of being the 1st of January, should be the 1st of April.

In England the yearling is almost always taken up in September, and not sooner. At that time the heat of summer is over, and the ground ceases to be hard and dry. After Doncaster a good many horses are

turned out of training ; some having become stale from continuous racing during the past six months, others broken down or gone amiss, and it is useless to patch them up for the two remaining months of the season, the trainers and their lads have more time at their disposal ; and, finally, at the Doncaster meeting is held the largest yearlings sales of the year, while most of the youngsters have changed hands, from the breeder to the buyer. It is useless to try yearlings earlier, because most of the entries for next year's races, excepting for a few "classic" contests, are made on the first Tuesday in January, and there is plenty of time to break and try yearlings, between then and September, and, by roughly ascertaining their merits, to obtain an approximate guide for their future engagements. Moreover, yearlings will suffer less in breaking and training during cool weather than in the summer months. This operation ought always to be conducted under the personal supervision of the trainer and with the aid of his ablest and most patient assistants. The effects accruing from ignorance, carelessness and ill-usage at this period of the colt's existence can never be completely effaced. The temper of many colts is ruined at this early age. It is now, principally, that he contracts vices, becomes headstrong, head shy, learns to break his halter, start back in the stable, kick, becomes hard-mouthed, timid or tricky, any or all of which not only cause him to be a nuisance to his trainer and attendants, but militate against his success as a racehorse.

Therefore no pains should be spared, no precautions omitted in his education. It is at this time also that the idiosyncrasies of the colt, his constitution and peculiarities of temper and breed, must be studied. As regards the last, there will be found a wonderful unanimity in the peculiarities of youngsters of the same family, which will be anticipated by a trainer who has studied this branch of horse lore. It is also desirable that the trainer shall know something of the colt's pre-

vious career. If he has been highly fed, pampered and petted, under the training process he will generally lose flesh rapidly. If brought up in the rough, he will generally improve in condition. Colts that have been kept out in the open, as they should be, with only an open shed to run to for shelter, are very liable to contract colds when first stabled, and care must be taken to supply them with plenty of fresh air, a remark applying indeed to all horses. Change of food also causes colts to contract ailments, as does also the confinement and artificial existence to which they are subjected, and physic in certain cases is required to counteract the effect of change of diet and other particulars in which their life varies when they pass from the breeder to the trainer. The feet should receive careful attention. They must be kept clean and properly trimmed. Most trainers lounge and break colts without shoes, and even when broken permit them to exercise without them. I think this is a bad plan. Having tried it myself, I have found that in some cases the feet are apt to get sore even on the best training grounds, the horn is liable to splinter, and the colt to slip up, especially on mud or short grass. I think colts should be shod at once, with very light short three-quarter shoes, which will prevent the evils alluded to.

The colts must be separated from the fillies.

We will suppose that the colts have been led about in a headstall or cavesson before they have joined the training stable; some may have been bitted, but this is undesirable, unless it has been done under good auspices, for it is far easier to learn than to unlearn. A badly bitted and therefore badly mouthed horse always runs at a disadvantage with competitors that excel him in this respect, and in addition he is troublesome at exercise. The breaking bit used should be smooth and round, either a single straight bar or a jointed snaffle attached to and removable from an ordinary leather headstall. I do not think it makes much difference which form of bit is used, although the first would seem

more likely to make an even mouth ; but there is more in the handling than in the bit. Dropping tongues, or smooth pieces of iron, are generally attached to the centre of the bit for the colt to play with. I do not know that they are of any advantage, but they can do no harm. Reins will be omitted at first. Thus accoutred the colt will be turned into his box, where he will play with the bit and get accustomed to it. He should be cleaned and rubbed over with a soft cloth to promote circulation and accustom him to grooming. Afterward a wisp of hay may be substituted for the cloth, and then an ordinary brush. His feet should be lifted, handled, and picked out, and his legs and ears rubbed ; which he will get to like. He should be frequently led in and out of the stable and out to exercise with a single rein, to accustom him to strange sights and sounds. About a week of this will generally be sufficient ; many horses will not require that time. If removable, I should, during the breaking of the colt, take all the fittings out of the stable to reduce the chances of injury. Colts, when fresh, are liable to play in the boxes and get their feet into mangers and racks, or by kicking them to injure themselves. After this the ordinary breaking tackle may be put on. It consists of a strong headstall or cavesson, with a thick leather band coming over the nose and round under the jaws, the inside padded to prevent the skin being frayed by the hard leather, and the outside furnished with a ring on each side, one in front and one behind, to which the lounging rein can be attached. This should be at least sixty feet long, of hempen web, or stuff similar to that from which racing girths are made, and which is very strong and light. With this gear the colt may be led out daily, and once a day taken to a secluded spot and lounged. A field which has been in corn or other cereal crop, devoid of stones, and soft, will be selected, or if that is not available, ground must be dug up for the purpose and the colts lounged thereon. They ought never to be led out to exercise without boots or ban-

dages covering the fetlock and reaching nearly up to the knee of the foreleg. Bandages are apt to come loose, and therefore I prefer boots. This precaution will save colts from injuries, especially to the forelegs, which occur from plunging, shying and awkwardness in the use of their limbs. The same necessity does not exist with the hind legs. Lounging serves several purposes. It teaches colts to use their limbs, gives them the exercise requisite to bring them into condition, and quiets them to undergo the process of backing and training, besides improving their wind. It must not be done excessively, so as to make them lather and sweat a great deal. Fat colts will fall off very rapidly in the lounge, while healthy ones that have lived sparely will train on and increase in muscular development. Most colts are easy to lounge from the very first; a few are troublesome. From right to left the majority will go readily enough, but from left to right some require strong persuasion. The reason is that almost invariably colts are handled and led from the near side. Were I a breeder, I should have my youngsters handled from both sides. A colt I owned was so seriously injured from the above cause that he had to be destroyed. He was by Boiard, out of a mare called Pomello, whose pedigree I forget, but who was very bad-tempered, a quality she communicated to her progeny.

This colt had an inveterate objection to lounging from left to right. He would fight for half an hour before he gave in. One day while playing his games he got away from the two lads who had charge of him, and jumping the "verditch," an old Saxon ditch or fortification separating Wiltshire from Dorsetshire, injured himself beyond repair. At first two lads should be allotted to each colt when being lounged. One may hold the rein and the other a driving whip with which to force the colt round if necessary. He should seldom if ever do more than shake it or crack it at him, but if that will not do he must use it and compel the colt to go. The second or third time the colt is taken out, a

surcingle or roller must be put on him, outside the stable, for when it is tightened under his belly the animal sometimes lashes out, and may do mischief to himself and attendants. On the roller pad should be two rings near the bottom of the pad, one on each side, through which to pass the reins, one in front to attach the breastplate, and one in rear for the crupper. In front of the pad and to the crupper, removable straps of thin leather are attached, hanging loosely to the knees and hocks. These, blown by the wind, or agitated by the action of the horse, strike lightly against his limbs and under his chest and belly, at first occasioning him some annoyance, but he gradually becomes reconciled to them, and when clothes, either his own or his rider's, loose breast-cloths and straps flap against him in the future, he will not be startled or annoyed. The same purpose is served by the cotton sheets tied on to the roller and dragging behind. These come against his legs and between them, making him kick and shrink at first, but as they are soft and do not hurt him he soon ceases to mind them. And here, in passing, I may remark that if you want to make a horse permanently timid, the best way is to hurt him. After the colt has become used to the roller, the breastplate may be put on, and then the crupper. This last should be done outside on the exercising ground, for the colts will, on finding it under their tails, often lash out, some very violently. The proper way is as follows: like all operations connected with the breaking of youngsters, it must be done without unnecessary delay and fearlessly. One lad holding the colt's head, another on the near side should take up the tail, being careful to gather up the stray hairs near the root. Another on the off side will have the crupper ready, and the second lad will pass the tail through the loop that goes under it up to the root of the tail, holding it in his left hand so that it shall not touch the horse. The third lad will buckle the other end of the crupper on to the ring in the roller put there for that purpose, and on a signal

both will let go, keeping clear of the horse's heels. When the latter feels the crupper, he presses it down with his tail, is generally much frightened, and lashes out for a while until he finds he has sustained no injury. He may then be lounged, and will by degrees become accustomed to the crupper. The next day the breast-plate and straps may be attached, and lastly the sheet. When the colt has become thoroughly accustomed to all the gear, the bit in which he is to be ridden may be put in his mouth, with the reins passed through the two side rings of the roller and loose. By degrees these will be tightened so as to make the colt bend his neck and throw him back on to his haunches. The length of rein on each side must be exactly the same, otherwise one side of the mouth will become harder than the other. Indeed, one side is often harder already, but this must be rectified when the colt is ridden. When he is accustomed to the breaking gear—with which he ought to stand reined up in the stable for an hour or two every day—the colt may be entrusted to the care of one attendant, who can easily lead him about and lounge him by himself. It would be wise if this part of his education were superintended by the trainer, whose presence even on the exercise ground will be a check to any roughness or ill-usage on the part of the lads. As soon as the trainer deems it advisable, the colt must be saddled and ridden. He is now accustomed to the pressure of the roller on the back and under the belly, consequently there will be no difficulty in saddling him. A few, a very few colts object to this operation, which must never be done forcibly; with these the saddle should be put in front of them so that they may smell and touch it with their muzzle, and then drawn over their heads into the required position. There should be two girths, gradually tightened. After being led about and lounged once with the saddle on, the colt will return to the stable, and there he may be mounted. A little oats put before him will make him quieter, but difficulty is seldom experienced. One man will be at

his head, another on the off side, and the rider on the near side. The latter will put his foot in the stirrup and take it out several times; then raise himself up and down more than once, taking care not to stick his toe into the colt's side. While doing this, the man on the off side will bear heavily on the stirrup leather to prevent the saddle from turning. After a while the rider may carefully throw his leg over and sit firmly in the saddle, gathering the reins up in his hand. He will pat and make much of the colt, and remain there for a few minutes, moving slightly in the saddle, if the colt shows no symptoms of fear. Then the colt, whose head should have been turned to the door, may be led out quietly and walked round the stable yard. Should he attempt to dislodge his rider, the latter must sit firm, and on no account allow him to do so. He should be the horseman of the stable with the firmest seat, and he must also have good hands, for to him is entrusted one of the most important parts of the colt's education. Should the colt seem disinclined to move under his burden, he may be led by a steady hack, or an old steady racehorse, whom he will usually follow. After half an hour's walking he should return and be dismounted in the stable. It is better not to keep him mounted too long the first time, as he may become tired or disgusted. After being ridden, a carrot may be given to him by the rider, and he will associate his first ride with pleasurable feelings. On the next occasion of his being mounted, which may be done the second time with the same precautions as before, the colt should be accompanied to the exercise ground by the old horse, whom he will readily follow. Otherwise, being very raw, it will be difficult to ride him in the direction desired, and he must not be urged or punished just yet with the heel or whip. The rider should make the peculiar noise common to all horsemen, which indicates to the trained horse that he is required to advance, and which he will come to understand as the signal for moving on. This time the colt should be ridden home

after the old horse, and dismounted in the stable without any assistance; and the next time he should be mounted without assistance. Of course, some colts will be found easier to break than others, and with a few the process of breaking might be curtailed without doing injury.

Bear in mind that horses have very retentive memories, and never forget any injury they may have suffered in cold blood while conscious of it; that they are very nervous, especially thoroughbreds; and that at this time the foundation of their future character, or, as it is not inaptly termed, "manners," is laid, so that a great deal depends on this preliminary education, and its importance should never be lightly estimated, for however promising in appearance, however well bred, or gifted with superior action, whatever qualities in fine he may possess, the colt's value as a racehorse will greatly depend upon the manner in which he has been broken, and all good qualities may be neutralized by bad management at this time. Wherefore, besides being a good rider, that is to say, having a firm seat and good hands, the man who breaks and rides him should be good-tempered and patient, never permitting passion to swallow up discretion, and he ought to be thoroughly acquainted with the breaking of colts, and with the various difficulties he has to contend with. The judgment of the trainer as to the work proper for each youngster, the regulation of his food, and of physic, if necessary, will at this time also largely influence his future career. Colts have various constitutions, various appetites, and varying nervous systems, and the work under which a strong, lusty, good-tempered colt will thrive, and which may be indeed quite necessary for him, will ruin a delicate, flighty, irritable animal. Pope says of man:

> "'Tis education forms the common mind,
> Just as the twig is bent the tree's inclined"—

but the education must often be differently administered,

The leading rein being dispensed with, and the colt ridden backwards and forwards to the exercise ground, following the old horse, the next step will be to get him to trot and afterwards to canter, or it may be that he will come to the latter before the former. When walking beside his leader, if the latter is made to quicken his pace, the colt rather than be left behind will break into a trot or canter and follow him; if not, he must be urged with the heel or lightly tapped with the whip or ash-plant, and the clicking noise referred to used along with this gentle reminder, and he will soon come to understand what is required, and move off after the "schoolmaster" when called upon. He must be ridden very carefully, hands down on the withers, seat well back and close to the saddle. At first colts will almost always yaw on the bit, throw their heads up and to one side, and often blunder with their feet, perhaps striking their legs together; and I may here remark, to save misunderstanding, that the boots on the forelegs should not be dispensed with until the colts have been tried, and not even then when they are at exercise. If a colt is disposed to break away when cantering, the rider of the old horse will pull up, and the youngster missing his companionship will soon pull up too. Half a dozen canters of a quarter of a mile each day will be quite enough for the yearling, and the whole time at exercise should not exceed two to three hours. By degrees the length may be increased to half a mile, which is quite sufficient for nine yearlings out of ten. As each colt becomes sufficiently advanced in his breaking or training, he may be added to the string schooled by the old horse, but the number should not exceed seven or eight, which is quite enough for the lad in charge to look after. If the yearlings exceed that number, another string should be started. Indeed, it is most desirable that there should be two lots, for the following reasons: Some colts, as stated before, are lighter, flightier and more delicate than others. With these it is necessary to moderate the pace and the work performed. The

trainer should cull from the two lots such colts as he thinks require either more or less work, and the backward ones should do their exercise with the second string, to be transferred in turn to the first when they develop qualities which justify such a transfer. I have often remarked the evil effects produced on the more delicate colts by having to do their work with the stronger ones. I do not think it necessary just now to separate colts and fillies in their exercise, but this necessity will arise in the spring. The trainer should always send home those young ones whom he thinks have had enough, and if he is not able to be present this duty should be delegated to the head lad. The riders ought to be classified according to the nature of their mounts. It is unreasonable to keep a good horseman on a quiet, tractable animal, while you keep a bad one on a colt that requires mastering. Horses are very quick to find out with whom they can play tricks, and with whom they cannot. Again, when a colt has a bad or an uneven mouth a rider with good hands must be selected to bring his mouth into shape. What a difference there is between the hands of one rider and those of another! I have seen an unruly colt with his head in the air, to the right, to the left, everywhere, on a change of riders quietly drop into his place with the rest after a few strides, and canter along with his neck nicely bent, leaning on the bit as if he derived comfort from it. I had rather have a man of ten stone weight ride a colt throughout all his exercise than one of half that weight, provided the former had good hands and the latter had not; and yet extra weight carried at exercise unquestionably makes either colt or horse slow: I presume for the reason that it develops the carrying at the expense of the locomotive muscles. When the trainer has classed the youngsters, the pace for the leading class may be made faster by the old horse, and occasionally all the colts in turn should be allowed to pass him and each other, so as to get them out of the habit of following only. It is well known that in the

paddock some yearlings will always give way to others, and they will continue to do so at exercise of their own accord. Such colts should be ridden to the front with gentle persuasion of hands and legs, or a sharper reminder from the whip if necessary. I do not advocate spurs with yearlings. They are apt to get pricked at the wrong time, and naturally fail to understand what is required of them. The whip or ash plant can always be kept away from their flanks, and will serve the purpose better than spurs. When the colts have been so far advanced as to be mounted and ridden without assistance, they should be taken out together or in lots, according to the number of lads in the stable. They should, after their small morning feed, be saddled and bridled, and left to stand for ten minutes or so in the stalls and boxes until the saddles have warmed to their backs; then the girths must be tightened, the colts mounted in the stable and ridden in a circle in the yard at a walk. It is now that the observant trainer will detect lameness produced by any cause whatsoever, and to assist him in detecting it the colts may be trotted round once or twice. Should he see anything wrong, the colt must be taken back at once and examined, after the others have left the yard, to ascertain the seat of injury.

There is one thing I should always insist upon when colts or older horses are sent to walk: that is, they should walk briskly, and not be permitted to dawdle. They should walk with their ears pricked, their heads up and their mouths feeling the bit, not dragging one leg after the other, their noses near the ground, and looking as if the whole thing were a bore. Brisk walking and less of it develops muscle to a greater extent than more of the last mode of progression I have described. To secure this brisk walk the fast walkers must be put in front. It is easy to check them if they go too fast for the others, and they will infuse a spirit of emulation into the others. Young horses, or, indeed, older horses for that matter, should never be forced past any object

which excites their dislike, or, what is more probable and usual, their fear. If that is done, superadded to the terror which an unknown object inspires, will be that fear of punishment by which, except in the case of vicious horses, a colt should never be inspired. If they are roughly treated on these occasions, every strange object will be regarded by them as a herald of punishment and with an aversion increased by the measure of unpleasant memories.

If, on the contrary, they are coaxed and petted up to the object of their aversion, and ascertain, as they will, by smell and touch, as well as by sight, that it means them no harm, they will, the next time, reasoning from their experience of the past, make less difficulty in approaching it than the first time. I wish I could impress upon the average groom or stableman what strong, keen intelligence and accurate reasoning faculty the horse possesses. An adequate realization of his capacity in these respects would create a beneficial change in their treatment of this truly noble animal. Asheton Smith, who spoke from sixty years' intimate companionship with horses and dogs, affirms in his Autobiography, that the former are more intelligent than the latter. Few people make companions of horses as they do of dogs, and, therefore, few have the opportunity of judging.

I want my readers now to hark back to the exercise ground, and look at the first and most advanced lot of colts, or number one class. They are all, from judicious management, perfectly under the control of their riders: these can send them to the front, or pull them back whenever desired to do so by the trainer or head lad. Perhaps the time occupied in attaining this result has extended over a month or six weeks, say five weeks, which is quite sufficient with forward colts that have not fallen off much in the breaking. Hitherto their gallops, or more properly speaking, canters, have been at such a pace that no visible difference has appeared in their powers. Now the trainer wants to know

something about these, not to try them, but he can form a good guess without doing that. He tells the rider of the old horse to take them along at three-quarter speed, say two minutes and a half to the mile. He begins to learn something about them.

He orders the pace to be set a little faster, and after a few days of this kind of work he sees enough to drop a colt or two out, to join the second string. Some colts that seem to canter easily and well within themselves in their slow paces, giving promise of speed, when they are extended, go all abroad, all to pieces, and lurch over the ground like a ship at sea. It is not because they are worthless, and have not the speed in them, it is because they have not yet learned to gallop. Others, on the contrary, and these are generally the small quick ones, respond to the increased pace, and rattle away in front with great comfort to themselves and to the eye of the uninitiated. In a few weeks, perhaps, all this is changed, and the last is first and the first last. It is a great mistake to hurry the backward colts; the trainer should see that they be brought on more gradually; they are not like those precocious children who astonish an admiring and appreciative home circle, and fail to astonish the world when they come out into it. A few horses of that class never show their powers or their promise as yearlings at all, and these must be kept till the spring. I must admit, however, that these cases are extremely rare, and I believe that a fair idea can be formed of the powers of nine out of ten, or even a larger proportion of yearlings, if they are persevered with.

All this time, besides learning to gallop, the yearlings have been getting into condition, have got rid of fat and laid on muscle, although the latter has not been acquired to any great extent. Their wind, too, is daily improving; they do not blow so much after a comparatively fast spin as they did after a slower one. They are nearly ripe for trial, those at least which are in the first class, which will have been weeded out and re-

cruited from the second class. Hitherto the colts will have been extended, but not put to their best at any time. They should now be pushed at different parts of their canters, sometimes near the beginning, sometimes about the middle, and sometimes near the end, but only for a short distance, say about a hundred yards, not all at the same time, but one at a time, or two or three together; for instance, a colt in the rear may be hustled along until he catches up and passes the others, then pulled up. This will teach them to race a bit at any part of the half mile, or for the whole of it when required. If youngsters are only roused at end of the distance, they are very apt to select this or any other part where they have been accustomed to race to make their effort; and it is desirable in a trial that they shall be called upon for the whole distance they are running. By this time they will be fit to try—that is the first class; the second, of course, must be persevered with, and will come on later.

CHAPTER XI.

TRIALS.

Object of trying yearlings—Trying two-year-olds—Time trials not reliable—Advantages and disadvantages of the time test—How yearlings should be tried—Weights to be adjusted—Backward colts—Failures to be got rid of—Two-year-old trials—The class of two-year-olds vary greatly in different years—1867 and 1880 compared—Consistent running of two-year-olds—Trials of older horses—A trial should be similar in conditions to a race—Good trials—Trials of no use unless the horse is fit, or over similar ground—Timing trials.

ALTHOUGH yearlings can scarcely be said to be tried, in the true sense of the term, it is necessary, as I said before, to test them, not with a view to ascertaining their actual capacity as racehorses, but more for the purpose of deciding whether they are worth keeping in training or not. The future form of a yearling can never be accurately determined, and in any event, as the test will only be made over a short distance, from two furlongs to half a mile, the result will indicate very little as to their future career as regards their distance, that is to say the length they can stay. It often happens that yearlings who are smart over a quarter of a mile or three furlongs never win a race at all as two-year-olds and upward, because all races are longer than the above distances, and it frequently happens that they have put their "best foot foremost" when being tested. A notable proof that this is the case came under my observation in 1881, when the rule in England limiting races to five furlongs and upward became law. On the authority of several trainers of large stables I ascertained

that many youngsters who gave promise, such as would under the half-mile limit have justified their owners in keeping them on and engaging them, failed completely over five furlongs when tried in the spring, and were consequently worth little for racing purposes. I always thought the five-furlong limit a mistake, because it prevented many two-year-olds from winning races, and thus relegated them to obscurity; whereas, as steeplechase horses, a very useful class all round, many of the best performers over two to four miles of country never could get more than four furlongs on the flat, or even less; and every hunting man knows what a show such horses can make of our best hunters in the hunting field, and how capable they are of carrying their riders to the end of a long run, provided, of course, that they have been educated over a country. It would seem from the above remarks that all yearlings before being entered should be tried over at least the shortest distance over which they are permitted to race: and, indeed, if this were practicable, if it could be done without injury to the animals, no doubt that would be the conclusion legitimately arrived at. But the exigencies of time, of heat, and frost and snow, and of hard ground, put a limit to the preparation which the average yearling can endure without injury, and it would be unadvisable to keep him in active training too long. Therefore we must be contented with a test which, though not by any means as reliable as a trial, will give us a tolerably secure basis whereon to found expectations.

I have heard of yearlings doing wonderful things with old horses, but I have never seen such performances, and, though they may have existed, I confess I am somewhat sceptical. Even in the spring, only a very moderate racehorse is required to try a first-class two-year-old, and I think this superiority in performance of the former is accentuated with the yearling in the fall. Probably most trainers are too wise to give their yearlings anything like a severe trial, and of course a trial must be severe to attest the relative merits of the horses. An older horse may be tried highly to-day and

suffer no injury therefrom, providing he is well trained, and may be fit to run the next day, or the day after; but a youngster, with softer and unmatured frame, is likely to be very much injured by such an ordeal. Consequently, whether he thinks a yearling can win a real trial with older horses, a good trainer will never submit him to the test.

There is another form of trial which is more highly esteemed in America than in England, where it is considered no test at all. I think that in most cases where there is a wide diversity of opinion between the experts of two countries as to the merits of any procedure, it will probably be found that both are in the main right, or at least have sound reasons to justify them, and that the divergence of opinion proceeds from conditions existing in one country, and not found in the other. I have never had any doubt in my own mind that time is not a reliable test of a horse's merits in England. There the courses and training grounds are so varied as to shape, length, undulation and hardness, that any trainer who depended on a time test would find himself sadly disappointed. Unquestionably the best horse has the best chance on courses with few, if any, turns, and an inferior one will equalize matters on a short round course, say of a mile, which must be nearly all turn, and which prevails in America. So also, the truly formed horse will have an advantage over a course that has up and down hill and flat in certain or uncertain proportions; while a sound-footed horse will have an advantage over one with thin shelly feet on hard ground. I remember taking a colt trained on the Berkshire downs to Epsom in 1881. There the going is very hard during the summer, and it was particularly hard on this occasion, whereas the training ground in Berkshire was beautiful going. On cantering the colt the morning before the race for which he was entered, I found that he could not go on the hard ground at all, and after waiting till next day, in hopes of rain, which did not come, I had to send him home. This is a common experience.

But if time is very little of a guide in England, I have found it in other countries somewhat similarly situated as regards training grounds and racecourses to America, a very useful auxiliary—a good servant, but a bad master. As the hatter in "Alice in Wonderland" says, "He won't stand beating. Now, if you keep on good terms with him he'd do almost anything you liked."

The great danger attending the use of time as an auxiliary is that he is always present with the trainer, who for a few pounds can carry about with him in his pocket a trial horse always fit to go. As a general rule trying horses is not overdone in England, perhaps it is rather underdone, but that is from necessity. In the first place, horses that will "ask the question" in private as well as in public are not "plenty as blackberries," nor are there many that will stand the work to which a good trial horse is subjected; while even the best and most reliable of these is not always in form, without which the result of the trial is, of course, unreliable; and finally a trainer ought to have a trial horse for all distances. A common reply to the very common question, "Do you think your horse has a chance?" is "I don't know, he is pretty fit, but I have nothing to try him with." Perhaps this involuntary omission is productive of less harm than the pervading presence of the stop-watch used in America. I am sure it is so to the horses themselves. "The sight of means to do ill deeds makes ill deeds done." Though indeed a betting owner may prefer having his horse broken down to being without reliable knowledge of his form. Everything considered, I think time will be found a valuable aid in approximately testing the merits of a yearling. If the latter could compass a quarter of a mile in twenty-five seconds or thereabouts, I should not discard him. This is not an extraordinary pace by any means, but taking into consideration all the circumstances that surround the yearling, it is an indication of sufficient merit to justify his owner in retaining him, and incurring the expense of his winter's keep, if not the cost of entries. As

to the latter, unless a colt shows great superiority, I should be inclined to let him take his chance with post entries, or those that are made just before a race meeting, of which there are sure to be plenty. Proceeding to discuss the trial of the yearling, I may remind my readers that in this early part of their career some will be found (and, indeed, this will be in a lesser degree during all their racing career) that are much quicker on their legs than others; such colts would gain so great an advantage in a short spin of two to four furlongs that more powerful and really better colts, a trifle slow or playful at the start, would never catch them, and any effort the riders might make with this object in view would very likely throw them "all abroad," and make matters worse, instead of better. Therefore, I recommend that the yearlings to be tried with a moderate selling plater should be cantered smartly for a hundred yards or so to the starting place of the measured distance, each rider taking care, as they approach it, to keep in line, and when they arrive at it be sent along assisted by a signal, making the best of their way to the winning-post. Here the trainer can stand with his stop-watch and time the first horse, and the last one within the twenty-five seconds, if the distance be a quarter of a mile; or thirty-nine seconds, if three furlongs; and fifty-four, if half a mile. The time indicated has reference to American "tracks" of average speed. These tracks, which are generally of clay and sand, and are harrowed and rolled, are considerably faster than turf, and in trying on the latter it would be necessary to ascertain what time a horse whose capacity is known, such a one as would be employed as a trial horse, can make over the same course, and test the yearlings accordingly. He will be very much aided in his judgment of the merits of each by questioning the lads (besides using his own eyes) as to how their mounts carried them, and if he be not satisfied with the performance of one or two of them, or rather not satisfied that these have shown their true form, he can try them over again. One colt may have changed his legs several times, as

they are apt to do; another may have been interfered with; a third may have lost ground by running out, and so on; but he must bear in mind that there are few lads, and, indeed, few jockeys, who will not find some plausible excuse for the beating their horse has received. I need scarcely say that the weights should have been evenly adjusted beforehand, and the weight of the heaviest lad will generally set the limit. The trainer will often have his private opinion formed beforehand, of the relative merits of the yearlings founded on observation, which will lead him to doubt the truth of the answer any particular colt has given to the question asked him, and in this case also he may try him again, and if he be not a delicate horse he will sustain no harm, although I think the less trying is done at that age the better. There are some colts, generally those who have large frames and loose action, and of certain breeds, who will never show their forms as yearlings, and it will be wise to keep these till the spring, during which time they will have grown compact, thickened, and have a better chance of distinguishing themselves. These, however, will prove exceptions, and, as a general rule, it will be better to dispose of failures than to pay for their winter keep. Without intending any disparagement to trainers as a class, or in any way reflecting on their honesty, it will generally be found that when they are paid so much a week they will take a more favourable view of the performances of yearlings, than when they are not pecuniarily benefited by keeping them on over the winter.

Some yearlings also may be in ill health, or the conditions may be such that it is impossible to estimate their future prospects. Personally, I should prefer to commence the racing season with a smaller and more select stud, and therefore get rid of these, but this must be always a matter of taste and expense. I have, however, always found it easier to buy than to sell, and we have a saying peculiarly applicable to horseflesh, "The first loss is the best."

The trial of older horses is a very different matter from that of yearlings, and the trial of two-year-olds from that of three-year-olds and upwards.

As regards two-year-olds, these will have to fulfil engagements generally over about the same distance of ground, that is, from half a mile to five furlongs early in the year, increasing to six furlongs later on, with perhaps a few extending over seven furlongs or a mile. I do not just now remember any over longer distances, except the Feather Plate at Newmarket, in which two-year-olds competed, used to be over the Czarewitch course, $2\frac{1}{4}$ miles, a very severe course, yet I do not think that the winning youngsters were injured by running that distance. It occasionally introduced us to fair horses who were stayers, such as Nougat; but, as a rule, the class entered for that race, in all ages, was not high, it being a selling plate. However, we are now chiefly concerned with the average two-year-old courses. As the winter passes and the spring progresses, an observant trainer will learn a great deal about the merits of his charges without actually trying them. Some will have gone on the right way, others the wrong way. Some will have shown vast improvement, others will have deteriorated, or, which amounts to nearly the same thing, will show no improvement. Some will have early, others later engagements, and nearly all will have had different preparations varying according to the time when they are required, and their respective peculiarities. These considerations will regulate the time fixed for their trials, of which the last should be a week at least before the event for which they are competing. It must be remembered that during the five or six months that have elapsed since a rough estimate has been formed of their yearling capacities, the youngsters have been doing steady work, walking, trotting, or cantering, their frames have become hardened, as well as their constitutions, and they have lost much of that "coltishness" which distinguished their earliest efforts. The conduct of a well-trained string of two-year-olds in the spring will

differ very little from that of aged horses, and in clothing, and at some distance, it would be difficult to distinguish which was which. Therefore, the tenderness with which they must be treated in their yearling tests will no longer be, to any great extent, a factor in subsequent proceedings. Consequently a trainer need not be afraid to try them several times, especially if it is intended to back them to any tune. After they have become fit enough to take along together at a racing pace, the distance being regulated by the judgment of the trainer, those youngsters that are sufficiently forward can be tried together at equal weights, and timed as in the yearling spin. I should recommend that this be a real trial, just as it takes place in a race, and that the results be very accurately observed and noted, for this running will form an excellent basis of opinion, and may save a future trial. In this respect, it should be noted, that the contests for which two-year-olds are engaged are run among themselves, without the competition of any older horse, consequently the relative merits of the former will be more correctly ascertained in this way.

I stated in the beginning of this chapter that early in the spring a very moderate racehorse is required to try a first-class two-year-old. This is so, not because superiority does not exist in the younger animal, but because he has not sufficient experience to bring his powers into play, and they are in fact dormant. Take the two horses a year later, or a year and a half later, and no reasonable weights will bring the old one and the young one together. It is not that the latter has since developed extraordinary powers, but because he has not been able to use those with which he is gifted until he has attained experience, and with it confidence. I have myself seen a future champion of English billiards beaten by an older man, who could not hold a candle to him had the former played his game. So it is with the racehorse. Now and then some wonder appears that sets all experience and all calculations at defiance, as in the case of Lady Elizabeth, who beat a first-

class horse like Julius, at twelve pounds (in the fall of the year, however). Probably this winter favourite for the Derby, in which she ran last but one, was never so good as when she met Julius, and on that form would have run far more prominently in the great race than she did as a three-year-old, for with ninety-nine horses out of a hundred it is all up and down hill, few remaining at the summit for any length of time. It would, of course, be impossible to state here at all accurately what the form of the trial horse ought to be, but, generally speaking, a fair selling plater will try a first-class two-year-old in the spring, and if the latter can beat the former at even weights, he may be deemed very near the top of the tree. After the two-year-old trial has been run, it would be advisable to try two or three of the best, with the trial horse selected, and especially select those that have to fulfil early engagements, at the distance they will have to run. In this trial, if the young ones and the old one are about equally quick at starting, the trial should be run from end to end; the two-year-olds may be pricked with the spur but never touched with the whip: the trial horse, if properly selected, will be a free goer and not require the latter. After this trial the trainer ought to have a pretty good idea of the sort of horses he has in his own stable, but this information will not necessarily stand him in good stead as regards their public form. Most people who have had long experience on the turf are aware that for some occult reason, which I have never heard satisfactorily determined, the two-year-olds in one year will be of a very high class, and in another exceedingly bad. An instance of the former was in 1867, when Lady Elizabeth was the champion.

In that year there were a large number of extraordinary two-year-olds. British turfites will remember it as phenomenal. Lady Elizabeth, Grimston, Bluegown, Rosicrucian, Greensleeves, Lady Coventry, Speculum, King Alfred, Suffolk, Restitution, Formosa, Leonie and Banditto, are a few of the most prominent

that I can now call to mind. On the other hand, as in Iroquois year, the two-year-olds were very bad. So that a trainer can never tell what will be the public form of his two-year-olds until he has had at least one try with those of other stables. Happy, indeed, is he that can carry off a good prize with one that he fancies least: he is then pretty certain to win all along the line; for young horses generally run up to their true form, which does not always happen with older ones, whose tempers and constitutions have been ruined, or their legs shaken, with too much racing. Indeed the consistency of two-year-old running in England is most remarkable; and I remember when for a couple of years I kept an accurate handicap of two-year-old form, it was quite surprising to me how closely they ran up to it, even to a pound or two.

Trials of older horses are conducted differently because the conditions differ. In the case of three-year-old races, as only horses of that age meet, it is of course necessary to ascertain early in the year whether they have preserved their two-year-old form, and can compass the extra distance set them. But for these races there are few competitors, the greater number being weeded out, and in five cases out of six the public proves to be the best judge, which means that the trainer can tell them very little, accidents excepted. In the great three-year-old race of England most of the horses that are backed a good while before the start are supported chiefly on the ground that accidents may befall those horses who have shown their superiority; and at the post, when the latter are seen to be fit and well, the liberal odds quoted about outsiders are principally "offered:" or if taken they are taken to square a book, or by those sanguine ill-judging individuals who think it better to back a bad horse at a long price than a good one at a short.

It is in handicaps that trials are of most value to owners of older horses. I assume that men who enter horses in such races generally back them. Common

prudence requires that they should know something of their form. If money is not in question, I see no credit in winning a handicap when receiving weight from other horses. We can easily understand and appreciate the pride or vanity which impels a rich man to give a large sum of money for a good horse in the hope of seeing him successful in weight for age races, and many of us will approve of it, but few will think it a feather in any man's cap if he wins a race with an indifferent animal through the mistake of the handicapper or his own cleverness, though if he lands the shekels that is quite another affair.

A trial, to be a true one, must be as nearly as possible a facsimile of the race in view of which it is run, in respect of pace, ground, fitness and horsemanship. If this view be correct, one in which the pace is stronger or slower, in which the ground is lighter or heavier, where the horse is unfit, or the rider inferior or superior, will almost certainly "keep the promise to the ear, but break it to the hope," which seems to me exactly what is not required of a trial. In respect of pace, one of the most celebrated trainers, in accounting for his mare's defeat in the trial and success in the race, told me that the owner, a noble lord, insisted, contrary to his, the trainer's, judgment, in putting into the trial an old horse "turned loose," that is with such a light weight, to make the pace, that no horse in creation could have lived with him. In consequence the trial was run at such a pace (much faster than the race—Cambridgeshire—could have been compassed by properly handicapped horses) that the animal "in pickle" for the handicap was beaten by a better stayer, the trial horse being a hundred yards ahead. She immediately went back to thirty-three to one. The only bet his lordship had on the race was one about "his lot" of four or five. The trainer, however, backed the mare, who won because there was no "turned loose" horse in the race, which was run at the ordinary pace.

If I were trying a horse that had to run in any handi-

cap, I should handicap those in the spin according to what I believed to be their form with a trial horse on which I could depend, and weight him at about what I thought he could win with, and try him over the same kind of ground as that which he had to race on. If the horse being tried won with about seven pounds from the trial horse, I should consider I had a good chance. If he won with fourteen pounds in hand, and the distance was a mile or over, I should be on good terms with all the world. Twenty-one pounds and a straight mile ought to be good enough to go nap on. I need hardly say that if your horse can stay, as the distance is increased, so the chance is increased, but scarcely any racing weights in reason will enable a non-stayer to beat a stayer if the pace is good; while in a short race, a bad start will neutralize almost any superiority. Two lengths in a true run mile race is equal to about five pounds.

It is very little use trying a horse on the flat when he has to run up hill or over a hilly course. Some horses, as everybody knows, cannot go in heavy ground; some can; some like to hear their heels rattle; while others, with tender or shelly feet, cannot race on hard ground.

If a horse is unfit, it is perfectly useless to try him; it is worse than useless, because an erroneous estimate of his powers, do what you will to prevent it, remains on your mind, and besides, a severe trial which would be innocuous to a horse that is fit, distresses and injures one that is not up to the mark. You may try a number of horses one day with indifferent riders up, and attain a result exactly the contrary the next day with real jockeys, although I may here remark that a stable lad accustomed to any particular horse will often get more out of him than a far better horseman, who is strange to the animal. More than that, jockeys are often tricky and take advantage in a trial as they do in a race, which, though proper in the latter, is not so in the former, where you desire to, and can best ascertain the form of your horses without the aid of superior skill or ingenuity.

As to the proper time for trials, that will be regulated by the fitness of the horse, by the peculiarities of his constitution, and by the condition of the ground. If a horse is of good constitution, not liable to suffer from a severe effort, there can be no harm done in trying him a few days before the race. On the other hand, should he be delicate or nervous, or likely to suffer from the effects of a strong gallop, he should be tried a long while before, or a sufficiently long time before to enable him to recover completely from his trial. Such horses seldom require much galloping, and can easily be brought fit to the post by light exercise. I may, however, here remark that, as a general rule, trials are run at too short a period before the race, leaving insufficient time for the horse to recover from the effects.

When once a horse's wind is right, providing he be not an exceptionally gross horse, it is easy enough to keep him right.

As regards timing in trials, it is a good and a useful test, provided the trial is not based upon time alone, and it will convey a great deal of information to the trainer.

CHAPTER XII.

TRAINING GROUNDS AND COURSES.

Superiority of English training grounds—The Down country—American tracks artificially constructed of earth, generally flat, monotonous, and cramped—Produce in America an evil effect on the racehorse—Undulating courses tend to produce the best shape and qualities—The Derby course.

THE United Kingdom enjoys advantages over every other country I have seen in its training grounds and courses, especially the former. Nowhere else is there the beautiful down country that is found in many parts of England and at the Curragh of Kildare. Nowhere else do we find the soft, velvety turf which varies very little in winter or summer, and which in its undulations affords every kind of gallop suited to the requirements of horses in training. In the United States and Australia, where racing is more extensively carried on than in any other country but England, the hot sun burns up the grass and necessitates, in the former at least, the construction of earthen tracks, over which the operations of training as well as racing itself have to be carried on, and which, being limited in extent, offer little variety to the trainer, being for the most part quite flat, and most of them in America at least, indeed all but two, not more than a mile round and resembling the Chester racecourse. Want of scope and flatness exercise an evil effect upon the breed of thoroughbreds.

As regards the first objection, want of scope, its force receives confirmation from the history of another celebrated trial of speed and endurance in quite another field. Every boating man is aware that prior to the year 1861, in the Oxford and Cambridge boat race, Cambridge had scored eight wins to Oxford's six. From that year to 1869 Oxford scored nine successive wins. The cause of these successive defeats was said by the partisans of Cambridge to be the narrowed and

choked condition of the Cam, upon which the Cambridge boat trained, and which prevented its oarsmen from attaining the sweeping stroke of their successful rivals, and caused them to develop a quick, cramped stroke which was fatal to success on the open waters of the Thames. A subscription list was readily formed to defray the expense of clearing and straightening the Cam, and the result was five successive wins for the younger University. This left Oxford two wins ahead, a lead which it has increased to three, the score standing twenty-two against nineteen, a disparity which I have little doubt would be effaced if the Cam were as favourable for training as the Isis.

Allowing for the extraordinary natural powers of Hanlan and Beach and Searle, I entertain very little doubt that the superiority of these Canadian and Australian champions is due in a great measure to their advantages in waters. Races run on cramped courses are not regarded in England as true tests of merit. As regards the advantages of undulating over flat courses, from experience and observation I have no doubt whatever that the former causes the development of a more perfect type of racehorse. The racing man's beau ideal of shape and qualities is "a Derby horse." The Derby course is uphill for a quarter of a mile, tolerably flat for the next half, down hill for the next quarter and undulating with a rise to the finish for the remainder of the distance. A horse must be truly formed to win a Derby. He must have good quarters to take him up hill, and both fine shoulders and well formed forelegs to take him down and round Tattenham Corner, while if there is the slightest thing wrong in the wind or with his stamina, he will fail up the severe pinch at the bell. Now, on a flat course excellence all round is not absolutely necessary to success, and horses deficient in shoulders, and with straight or badly formed forelegs, or insufficient power behind the saddle to take them up a hill, will frequently be successful on such courses. Nevertheless, a truly made horse can show his powers over any course. If I had an undulating ground to train

on, I should expect to win more races over flat courses; in fact to produce my horse at the post better all round.

Dead, sandy courses tend to make horses slow. If you gallop a horse much on the seashore, be the sand hard as it may, you will make him slow; you will also jar his legs. The best natural training grounds in England are those downs where a thin layer of soil, covered with short, thick grass, lies on the chalk, which forms a natural drainage, and by the action of capillary attraction prevents the surface from becoming hard in the dryest summers. The injurious effect of small, flat racecourses in America is enhanced by the fact that they are training grounds as well. This leads us to another consideration—variety. A horse in training will thrive better, do his work more cheerfully and with less monotony of feeling, if he has a number of courses, or a wide extent of training ground available. Horses get sick and tired of grinding away day after day over the same track. A certain amount of acquaintance with the track they have to race on will prove useful, but the everlasting grind over the same ground; whether cantering, galloping, trotting, or sweating, disgusts a horse and leaves him, when the race comes off, in doubt as to what is exactly required of him.

It may be advanced that this drawback is the same for all, but, practically, it is not so; for certain animals will be more affected by it than others, as they differ from them in temperament, just as some men can endure monotony less than others. The writer well remembers how sick he and many others became of the unvarying dead level and sameness of British Guiana, and how welcome was the sight of hilly or undulating ground, and yet the Dutch settlers did not seem to mind it. Dwellers in countries answering to the former description are sure to become slow in wit and movement, while rapidity of thought and action belongs to the denizens of undulating countries. Tan gallops are very desirable in the case of horses that have to be prepared for early engagements. They should be laid on undulating ground so as to give a gallop up hill.

CHAPTER XIII.

REMARKS ON TRAINING.

Paces of the horse—Their uses in training—Staying means wind—Stayers narrow and deep chested—"Stonehenge" on chest formation—Mr. Ten Broeck's horses in England—Horses of to-day stay as well as their ancestors—Prioress, Saunterer, Fisherman, Ormonde—Long distance racing injurious to horses—Light and small horses stay better than heavy and large ones—Teddington, Stockwell, Hampton—Delicate horses—Overwork a besetting sin—Horses run best when big—Training of to-day differs from the methods of seventy years ago—Requirements for short racing—Three kinds of horses—Winter training the foundation of future success—Backwardness and its causes—Treatment of horses during the winter—Winter stable hours—Exercise—A straw ride—Idleness deprecated—Horses should be fit to run on 1st May at any distance—Early and late racing profitable—Horses should love their food and work—Clothing in winter—Herbert Spencer on the effects of cold—It stops horses' growth—Delicate horses—Good feeders—Gross horses—Outward signs of condition—Evidence of internal fitness—Treatment before a race—Two-year-olds in the winter—Their improvement—Last preparation—They run truly—Require plenty of rest—Clothing in training—Admiral Rous on clothing—Learning to start—Putting to rights—Physic—Horse's capacity in mud should be ascertained—What makes a horse go well in mud—Examples—Too much fast work undesirable—Afternoon exercise—Weight of riders to be ascertained—Variation in stable hours—Spring handicaps—Staying and speed do not always increase with age—Gradual preparation important—Leading work—Hurried preparation.

IN the paces natural to the horse, viz. walking, trotting and galloping, the various muscles are in each variously exercised, and it is necessary that all three should be employed in order to develop every part of the frame.

Cantering, it may here be remarked, is slow galloping. The term is derived from "Canterbury gallop," which was the name given to the slow pace adopted by pilgrims to the shrine of Sir Thomas à Becket, at Canterbury. Perhaps, as it was the practice of the Church in those days, and, indeed, for all time, to relieve its members of their superfluous goods, the lightly handicapped pilgrims, on their return, broke into a real gallop; but history is silent on this point. Gallop is always erroneously used in America for canter. I use it in its proper sense, i.e. a fast canter. That the stress laid upon the various muscles in each form of progression is different may be inferred from the fact that horses voluntarily change from one to another, and evidently obtain relief from the change.

Walking exercise is useful principally for the purposes of developing the muscular tissue, freeing it from fat, hardening the limbs, that is, enabling them to bear the strain of severe work without injury; keeping the horse in good health, and enabling him to consume with appetite a large portion of food, necessary for the production of muscle; proof of the last being found in the fact that horses, after walking exercise only, rarely fail to clean out their manger, while very often the same animals, after a gallop or a sweat, will refuse their feed.

Cantering and galloping serve to increase the muscular development, to remove fat, to supple the muscles and tendons employed in that mode of progression, thereby increasing the stride and to "clear the wind" by the violent exertion of the lungs, which rids the thorax of fat laid on inside during idle hours, thus leaving more room for lung expansion. It stands to reason that if the cavity occupied by the lungs is partially obstructed by fat they will have less room left for expansion; and that the lungs themselves, if loaded with fat, will be in an unfavourable condition for the consumption of air. *Staying means wind,* and a horse who from the internal condition of the thorax and its contents, coupled with its natural capacity for expansion, can

inspire and expire more air than another not similarly favoured, will outstay him. Capacity of expansion is principally due to conformation.

Stonehenge, in his remarks on conformation, says: "*Anatomically, and considered per se, a round or barrel-like chest is the best, because it admits of more free expansion and contraction,* but when either high speed or smooth action is required this formation is objectionable for the reasons I have given above, and is in all cases to be avoided in the thoroughbred horse. It has been proved that good wind may be obtained from a chest possessing great depth without much width, and in some cases with a very narrow bosom, as in the celebrated Crucifix (dam of Priam); and as the opposite proportions are incompatible with speed, they must on that account be altogether rejected." The reasons he refers to are as follows: "The chest in the thoroughbred horse must afford sufficient room for the heart and lungs, but it must not be too wide, or it will interfere with the free play of the shoulder blade as it glides on the side. An open bosom is regarded as a sure sign of want of pace by every racing man of experience, and I know of no single exception."

With the opinion expressed by this capable writer, I am in general agreement, except that portion italicized, wherein I hope to prove that he is altogether mistaken, i.e. in saying that a round chest admits of more free expansion and contraction, and consequently that it is anatomically the best. In the first place, I cannot perceive how any formation can be "anatomically the best" which defeats its own purposes. But as regards freedom of expansion, let me ask my readers to take a round vulcanized india-rubber ball, with a small hole in it. When not subjected to pressure it is as full of air as it can hold, and incapable of further expansion under atmospheric pressure alone. Press it between the hands until it assumes an oval shape, somewhat that of the chest of a thoroughbred horse, and you will expel some of the air, but, on removing the hands, it will expand,

whereas there was no expansive capacity before. So it is with the horse's chest, because, as with the ball, an oval has more expansive capacity than a circle which has none, so will a narrow chest have more than a round one. If anyone will stand in front of a horse after a severe race, he will see the oval outline of his chest swelling out to the round, and will also perceive what I am attempting to describe and illustrate, the capacity for expansion existing in a narrow-chested horse. I do not altogether agree with Stonehenge that a round chest is incompatible with speed, because I have seen such chests on speedy animals, but never on stayers; still, in the main, he is right. The author I have quoted above, writing in 1860, says: "As far as I have had an opportunity of seeing, and with the single exception of Charleston, all Mr. Ten Broeck's horses have been extremely narrow, the crack, Umpire, in particular, being like 'two deal-boards nailed together,' as the 'men of stable mind' say here." It was generally accepted that Americans claimed staying as the forte of their horses. I think that men who are of the contrary opinion to that which I have advanced, and who accept as a description of the older horses "the sturdy, short-bodied kind of the older days," contrasted with the "long-legged, wedge-shaped sprinter of to-day," should recollect that few, at least on a racecourse, ever see a horse end on, and the first part of the description quoted might easily apply on a lateral view to the horses Stonehenge described as "extremely narrow." So much importance do I attach to this conformation, I believe it to be that transmitted in staying families, and which, *ceteris paribus,* causes them to stay. Some horses that have deep, narrow chests appear rounder than others, but that is because of great development of the muscles of the shoulder, and does not affect the internal structure, which is the main thing. This digression may appear out of place, but if it be successful in fixing the attention, and convincing the reader of the truth of the aphorism "*staying means wind,*" it will have

answered its purpose. Another remarkable illustration of this truth may be drawn from roarers. Every racing man knows that an affliction of this kind will neutralize all the advantages derived from unexceptionable breeding, and excellence of shape and action; so that horses which have shown first-class form in public or in private, on turning bad roarers will be scarcely capable of winning a selling race. The effect of roaring, whatever may be its cause, is to deprive the lungs of the amount of air required for consumption, so that they do not expand as they otherwise would, and as they *must*, in order to carry along the horse at a racing pace for a long distance. Whatever, then, interferes with their capacity to consume air is that which the trainer will exercise his ingenuity to remove.

One word more about stayers. A great deal of nonsense is talked and written by people who have but a very superficial knowledge of horses past and present, about the deterioration of the horse generally and of the racehorse in particular, by the introduction of short and the abandonment of long races. The fact is that our most useful horses—hunters hacks, steeplechasers and well-bred harness horses—are sired by non-stayers on the flat; big, powerful animals that can travel fast for a short distance, and who could carry heavy weights to hounds, if asked to do so. For the above purposes, stayers would not be nearly so useful, even if their services could be procured at reasonable rates. I have not the slightest doubt that there exist, *per capita*, as many, and indeed more stayers than in the days of four-mile heats, and this fact would be proved if this barbarous practice were revived. Admiral Rous, speaking a quarter of a century ago, said that now Flying Childers would be about capable of winning a thirty pound plate, winner to be sold for forty sovereigns, and Eclipse and Highflyer a plate at Newmarket, winner to be sold for 200 sovereigns, but that they would utterly fail to win at weight for age in good company; and anyone who has seen a gallery of authentic

prints of the celebrated racehorses from the time of the Darley Arabian, to the present day, will, I think, cordially agree with him. *Laudator temporis acti*, is the motto of fogies, but, in spite of it, records are almost daily beaten by men and other animals. I don't suppose any one credits the fabulous mile-a-minute of Childers or Eclipse any more than the lamp of Aladdin, the Brobdingnags of Gulliver or the age of Methuselah. Men grow taller and live longer, too. Long distance racing gave way to short in England, about 1830; and in the United States about 1876, which may account for the superiority of English-bred horses over the shorter courses. But I think it is an error to infer a superiority over long courses for those produced under the old system of racing.

When in 1857, after being beaten in the Goodwood Cup, at weight for age, Prior and Prioress were entered for the Cesarewitch, the former, a five-year-old, was awarded 7 st. 12 lbs., and the latter, a four-year-old, 6 st. 9 lbs. Prioress won after a dead heat with two moderate three-year-olds, the second in the run off being El Hakim, who carried exactly the same weight as the winner, that is to say, he was at a disadvantage of 12 lbs. with her, that amount of weight being the allowance a three-year-old receives from a five-year-old. In the race there was Fisherman, four years, giving the winner 36 lbs., and Saunterer, a three-year-old, giving 24 lbs., or with weight for age, exactly the same weight as Fisherman. The betting points to the fact that neither of these horses was backed, and therefore probably not meant, indeed Saunterer's name is not mentioned in the betting at all. Now, if there is any lesson to be learned from this public trial and handicap of the new and the old style of performers, it is not the deterioration of the former as stayers, through thirty years of short distance racing.

Since then another thirty years has been occupied in short distance racing, and if we could resuscitate Saunterer and Fisherman in their best form and run them

against Ormonde in his best form, I think most racing men will agree with me that the betting would be five to two on the Duke of Westminster's horse over a distance of ground. I said I had little doubt that there were more stayers *per capita* now than in the olden time. Most of the horses, subjected to the severe tests both in training and racing, of those days, became unsound, or their constitutions were injured. Even the cast-iron Lexington in America went blind before he left the turf—blindness was much more common in those days than now—and it is reasonable to expect more stamina from sound parents. The fact is there are many horses now whose staying powers remain undiscovered, because they are not called for; but if they were, we should see more stayers in proportion than in bygone days, and better time too.

It is, as I have before remarked, on galloping and sweating that the trainer must depend to clear his horse's wind. Trotting occupies an intermediate position between walking and galloping, and will be found a very useful auxiliary, especially in training horses whose legs and feet are not of the best.

Light-carcassed, narrow-chested horses are more easily trained than lusty animals inclined to put on much flesh. It is an error to suppose that big horses can carry more weight when racing than moderate-sized ones. I prefer, on the contrary, small horses as weight-carriers, although this remark does not apply to hunters or saddle horses. Any one who saw little Teddington giving nine pounds and a beating to the magnificent Stockwell up the severe hill at Ascot, or later on, the handsome pony Hampton win under heavy weights at all distances, or Firenzi carry crushing weights to the front in America, will have had ocular proof of what I allege. It may be the force of early impressions, but if I were to pick out of all the horses I have known that one which best realized my ideal of perfection as a stayer, I should select the black Saunterer, by Irish Birdcatcher, out of Ennuie, by Bay Middleton, who is depicted in the

frontispiece. Lengthy, light, elegant, with the most perfect action imaginable, and yet looking, as to size and power, nothing more than a ten-stone hunter, he was probably the best horse and the best stayer of his day.

As you saw him sweep past the stand in the preliminary canter, you asked yourself the question, "Where does this power lie?" But a moment's reflection compelled the other, "Where does it not lie?" Such horses are rare; fortunate is the owner who possesses one, and fortunate the man who trains him. Probably another reason why light, small horses stay better than fine slashing ones is, that they have less weight of their own to carry, and though it does not stop them pound for pound as does weight on their backs, still it needs more muscular exertion and wind, more power and fuel, to take it along. Delicate horses are generally good winded horses, and require less work than those of stronger constitutions, but they also require more care and watchfulness in training, and more humouring. Mr. Robert Peck told me that Kaleidescope, with whom he won the Lincolnshire Handicap and a considerable fortune, was one of this kind, and that, after a successful trial before that race, he kept him walking and trotting only, for a week before the event, which treatment no doubt insured his victory. The touts, truthfully, reported the horse to be doing no work, and he went to a long price in the betting, as is often the case under such circumstances.

I understood Mr. Peck to say he bought Kaleidescope under the conviction that, being a delicate horse, he required less work and more nursing than he had been in the habit of getting, and expected him to improve very much under a varied course of treatment; wherein he showed sagacity and judgment which were justified by the result.

The besetting sin of trainers is overgalloping; horses are galloped too much and too fast. Tom Oliver, trainer of Albert Victor and George Frederick (though

he died before the latter won the Derby), used to say that Epsom Downs was the best training ground in England, and when asked why he selected the notoriously inferior down as a subject of praise, he replied that the ground was so hard during the greater portion of the summer trainers dare not gallop their horses for fear of breaking them down. Perhaps some of this excessive galloping is due to the desire owners have of seeing their horses in active work. I am convinced, however, that in England and America horses are overgalloped, and especially is this the case in the latter country, where they suffer from the greater heat of the climate and cannot stand so much work. I remember that when in the West Indies, a hot climate, my horses were always considered undertrained—too fleshy—and yet they were nearly always successful, which cannot have been due to their natural superiority, because when I sold them they failed to win, as I considered, from overtraining, and several that I bought back again were able to win as before.

It is a rare but familiar saying of a horse, that he trains himself. It means that occasionally one is met with whose constitution, feet, legs, wind and temper are so fine that the greatest stupidity and neglect is necessary to ruin his chances of winning. Such horses are, indeed, *rara aves*, while ninety-nine out of a hundred require the constant and unwearying attention which I have endeavoured to impress on my readers are necessary to insure success.

The training of horses in the present day will differ widely from that of seventy years ago, when Mr. Darvill trained and wrote. The incessant galloping and sweating of those days is a thing of the past. It may have been—perhaps it was—necessary, to enable horses to compass the long distances over which they had to contend, and to endure a repetition of them on the same day in heats; at the same time, it must be remembered that, under the light of science, a similar revolution has been going on in the training of man,

who has tasks set him now quite as severe as those he had to accomplish in days gone by, which indicates that training as an art was less understood, or less scientifically followed, by our forefathers than by their descendants. Whether, then, the former were right or not, it is now generally accepted, both in the case of the short-distance pedestrian and in the short-distance racehorse, that what is chiefly necessary is to keep the body in a state of vigorous lusty health, to develop the muscular system, and to keep the wind right for almost exactly that distance which the competitor has to compass, and no more. Every trainer knows that the preparation a horse undergoes for a long race militates against his chances in a short one, so that it would be folly to gallop an animal for two miles when he has only to travel one. Moreover, a racehorse in lusty condition is likely to train on, no mean advantage in times when so many prizes are offered for competition; while one that is trained to the hour is very likely to fall off, and it is much easier to work a horse fit, to get him to the top of the hill, than it is to recover him after he has descended the other side.

I do not mean by this that it is desirable to run a horse for any race unfit from want of work, but that it is better to do so than to run him unfit from too much of it. Neither a bow nor a racehorse can be kept highly strung without detriment; and although I do not agree with the dictum that a horse can only be made fit once or twice a year, the statement may be accepted with modifications.

Reduction of flesh may be attained in many cases by walking and trotting exercise and the use of clothing, as well, if more slowly, than by galloping and sweating, with the advantage of less injury to the limbs and constitution; although with gross horses the latter means must be resorted to, and it will be even necessary to employ physic; but with the average racehorse galloping and cantering will generally be relied on for the purposes alluded to in the commencement of this

chapter, viz. for suppling the limbs, extending the stride, and clearing the wind.

In illustration of the principles suggested, I shall now proceed to consider the method of treating the three kinds of horses usually met with on the training ground and racecourse, viz.: light delicate horses; good constitutioned ones, and gross horses who are greedy feeders and lay on fat both outside and inside, often more rapidly than with due regard to their limbs the trainer can conveniently remove it. Besides these there is a fourth class which partakes of the characteristics of all three, but which the trainer will have been unable to place just yet—the yearlings and two-year-olds. As some starting point in time must be selected in describing the operations of training, perhaps it is as well to choose that period when the yearling trials are over, and the racing season is at an end—when the trainer has brought his horses home to their winter quarters, having formed a pretty accurate idea of the constitutions and capabilities of the older ones under his charge, some perhaps having been added to his string at the end of the season, too late to enable him to form a reliable opinion as to their peculiarities and temper, whatever he may know of their public form.

He has five or six months before him, however, ere any of his charges will be called upon to fulfil engagements, and, consequently, plenty of time to rectify any mistakes which are inseparable from even the highest talent and assiduity, and to make any discoveries which may guide him in training them.

While the end of the season brings rest to the many who are connected with racing, it brings none to the trainer, however much he may have earned it. The operations of the ensuing six months form the basis of all that is achieved during the six which follow it, and assiduous care and attention are now just as requisite as during the racing season. True, the trainer is not so much hurried, and has more time to look about him, but, nevertheless, the foundations of a successful racing

season are laid during the interval which elapses between the past and the coming one; and there are other considerations which have weight with him, and with which he is not so much troubled during the heat of racing. With proper appliances and proper attention it is quite feasible to bring any horse to the post fit to fulfil his early engagements. We constantly hear that such and such a horse is backward, and will be fitter later on. This may, of necessity, be the case where the powers of horses are not fully developed, but this is the backwardness of age and growth, and not that of condition. Nevertheless, it often happens that horses early in the season are not so forward as they might be, or as they ought to be; but this is caused by neglect or "by taking it easy." I once had four two-year-olds in January under the charge of one of England's most distinguished trainers, and learned to my surprise and disgust that they never exceeded three days a week at exercise. The reasons why horses are indulged in this manner, are, partly, that trainers during the winter months lose their interest in all but a few horses from whom they expect great things, and do not regain it until the advancing season renders attention to them absolutely necessary; just as a brilliant schoolboy engrosses the attention of a master who expects to enhance his reputation through the talents of his pupil, while he neglects others not similarly favoured. There is also a natural desire and inclination for repose—taking things easily—when the excitements and rewards of the racing season are not immediately in view; and possibly, to these may be added motives of economy, which will naturally actuate such trainers as derive their emoluments from a fixed rate per horse. I have seen more horses neglected in this fashion in the largest and best stables of England than in the smallest. One reason, perhaps, for this is that in large stables trainers have too many horses to look after, and I think that thirty is as great a number as any man can personally do justice to in England.

The first object of a trainer on returning to winter quarters should be to restore all his horses to health and vigour. In accomplishing this he will be greatly assisted by physic, which should be administered to all those that require it, in the manner explained in the chapter on physic. At that season of the year he will be unable to "soil" them, or give them green stuff, and I have little doubt if that were not the case, in many instances medicine could be dispensed with. Delicate horses, before alluded to, will often not require any, and, indeed, will generally be better without it, unless it is necessary to get their legs into shape, and they should have become stale from excessive racing. A fortnight or so will be sufficient for this purpose, and fine weather ought to be selected. The horses' feet will next require his attention. As each horse requires removal, three-quarter shoes should be adopted; they may be made a trifle heavier than during the racing season, and fixed with as few nails as possible. So soon as the horses have got over the effects of physic, they should be put to walking exercise, and plenty of it. This will give them appetite for their food and put on muscle. The stable hours may be shortened, for the mornings; evenings will be raw and cold, and there will be no necessity for early hours. Four hours' walking exercise a day for lusty horses, and a shorter time for the more delicate ones, will be sufficient, varied with trotting for the next six weeks. This carries us into the beginning of January. The horses should be kept warm both in and out of the stables. The yearlings, however, must be treated somewhat differently. The amount of training and trying they have undergone will not have been sufficient either to make them stale or to necessitate a rest. They are growing; with their growth, osseous development is progressing, and they must be cantered and galloped if practicable to cultivate the pliancy of their limbs, and with it their stride. As a general rule walking exercise is less suitable to young than to older horses, and I think it quite possible to make a yearling

or two-year-old slow by much walking exercise, but if the state of the weather and the ground prevent moderately fast work, walking and trotting must be exclusively resorted to. The exact amount of each kind of exercise must be determined by the trainer, and no rule can be laid down. If entries have to be made by the first of January, and the trainer keeps his youngsters up to the mark, and has a gallop for them of tan or other soft material, he will find in the case of a few of them that he can before that time obtain much desirable information to guide him as to their engagements. He should never allow any of his horses to get too much "above themselves," for if he does they will cause him trouble in the winter months. To prevent this he may have to resort to physic again, but it will rarely be necessary if he pays constant attention to the above warning. In cold weather, besides clothing the horses sufficiently, he should be careful to see that the lads are warmly clothed, and wear woollen socks and gloves to keep their feet and hands warm. There is nothing makes lads more irritable and impatient than cold hands and feet, and from this state of mind horses often suffer vicariously. But he should not be deterred by inclement weather from sending horses out to exercise, except when it is very bad indeed. Neither snow, nor frost, nor rain, nor all together, do horses half so much harm as idleness. "The horse's greatest enemies," says Abd-el-Kader, "are old age and idleness."

Horses sustain no injury from rain or walking in the snow providing they are dried properly and have dry clothing when they come in; but they do suffer from being shut up in the stable. If a circular covered way were available in cases when the weather was too bad for the horses to be out, I am sure it would well repay the cost. At this season they may be liberally supplied with carrots or any green meat procurable, as a change of food; and in times of enforced idleness their oats may be changed for mashes. Now is the time to put everything straight in the stable; to have the saddlery

and clothing repaired and put in proper condition for use in the winter and coming season. At this time also provision should be made to amuse the lads in the evenings, which they will find otherwise very difficult to get through without doing mischief.

Close attention should be paid to the excretions of the horses, as nearly all disease is accompanied or preceded by internal or intestinal disturbance, and the symptoms thereby afforded will often enable the trainer successfully to combat a disease before it has been well established. In many cases external diseases originate in the stomach, while in others the latter is affected by them; and I think a trainer should have sufficient acquaintance with the pathology of disease to enable him to diagnose, or at least draw inferences from what he sees. Thus, when the kidneys are inflamed, the urine is highly coloured, and diminished in quantity, and it will be dangerous to administer diuretics, which tend to increase the inflammation. Worms also, and cold in the early stage, are indicated by the condition of the dung; and so on. Other internal indications will be of service to him in like manner. Cold ears and cold feet and legs, for instance, often denote internal inflammation, and for this reason, as well as for the detection of external injuries, I recommend that every trainer or his head lad pass his hands over the forelegs and ears of every horse under his charge each morning before the horses go out to exercise. This practice will greatly diminish the sick list of the stable, not only during the winter and spring, but during the whole year. I need scarcely say that any swelling of the limbs, lameness, or refusal of feed, should be reported by the lads in charge of the horses, and this should be a uniform daily practice thoroughly established as the routine of the stable, each horse being reported on, not only if he is amiss, but if he is well. Each lad should also be questioned as to the manner in which the horse he has ridden comported himself at exercise; whether he was dull or lively, etc., and the best time for this

will be when the second feed is being served out by the trainer or his assistant, after the horses have returned from exercise; because the trainer will then be enabled to decide intelligently what feed the horse is to have, and whether it is desirable to make any change.

Whether from laziness, or from a desire to see every horse exercised under the trainer's own eye, or that of the head lad, or from an inadequate appreciation of his duties, it is not uncommon—indeed from my experience it is very common—to see during the winter a whole string of horses going out to exercise and returning at the same time. As the kind of work performed during the winter is generally the same, this practice cannot fail to be wrong. I think it is Montesquieu, in "Esprit de Lois," who alleges that if two peoples, of different race and different temperament, are governed by the same laws, one must be, and both probably will be, badly governed. With racehorses the same reasoning applies. No two horses are exactly similar in all respects, and among a large string there will be very wide divergences in stamina, temper, constitution and soundness. It will be impracticable to treat every horse differently during the winter months, although it is quite possible to do so, therefore the horses should be classed together as approximately as possible, according to the peculiarities enumerated above, and certain hours of exercise allotted to them. I consider the principle underlying these last remarks to be that which is most important, which should exact the most considerable share of the attention of the trainer, and which, intelligently interpreted, leads to success. It meets him at every turn, not only during the winter, but throughout the whole year, and its importance is accentuated during the early career of a racehorse, when his temper, habits, constitution and general character are being formed. It is in its application that the trainer rises to the highest level of his art, and beyond those very necessary qualifications which are required to make a good groom

or stableman; like the higher branches of all arts it is difficult to attain, and difficult, if not impossible, to explain, depending, as it does, on conditions which are not strictly definable and are ever varying, and on experiences newly encountered, and of which each requires to be considered separately.

I have stated that the stable hours will be somewhat different in winter from what they are in summer. It will be sufficiently early to open the stables at 8 a.m., and sufficiently late to shut them at 8.30 p.m. From 8 to 9 a.m. the horses will be dressed and fed; then the boys can go to breakfast; return at 9.30 a.m. and go out to exercise, which will extend from one to two and a half hours. At 12 noon they are to be watered and fed in the usual manner; shut up and left with a small quantity of hay until 4 p.m., when some of the horses may be exercised again for an hour or so, and the others watered and fed. These horses which have been exercised will return at 5 p.m., and be watered and fed, and the stables shut up till 8 p.m., when the horses will all be watered, dressed and fed, hay put in their racks for the night, done up, and the stables closed at 8.30. These hours are by no means rigid.

It takes about four hours for a horse to digest a full feed of oats, and they are based on that. Should the horses have, from bad weather, to stop in the stable a whole day, their legs should be rubbed for an hour. This takes the place of exercise for horse and lad. They may be rubbed twice a day, half an hour at a time, at 9.30 a.m. and 4 p.m. On these occasions give a bran mash at night, and in any case give one, two or three times a week at night. Occasionally give instead of pure oats the following feed: Two and one-half pounds of oats, one pound of chaff cut from the best hay, and one pound of carrots cut fine, all well mixed up together. This forms a break in the diet, and, like most change of good food, is beneficial.

Three times a week all the horses should be fed as follows: Put into a mash tub the following for each horse,

two and a half pounds of oats, and one and a half pounds of bran, and mix them up with a heaped teaspoon of table salt. Pour boiling water over the whole sufficient to bring it nearly to the consistency of a mash. Add for each horse a proportion of two ounces of linseed, which has been previously steeped in a pint of water for forty-eight hours or well boiled for three hours, and mix well with the mash. This should be done about noon. Cover the mash over with a piece of sacking, and cover all with old clothing, sacks or anything which will keep the heat, and feed to the horses at night. This is good all the year round. A little crushed Indian corn may be added for a change.

As the weather becomes colder, clothing, both in and out of the stable, must be increased, and *vice versa*. This should particularly be attended to in the spring. To prevent cold, distemper, etc., ventilate and isolate. The belly, if it gets wet, should always be dried, as a wet belly is a common cause of disease.

As to exercise, horses should walk in the winter a good deal in the straw-yard or on the tan before they go out to the regular exercising ground. It steadies them. They should also be cantered for the same purpose. Exercise creates appetite, promotes digestion, excretions and secretions, assists in converting food into muscle, and if not liberally employed, horses will not continue in good health. Their feet will especially suffer.

Of the three classes of horses alluded to, viz., gross feeders with good constitutions, moderate feeders with healthy appetites, and delicate horses, the first will give the trainer most trouble in the winter, and the last in the racing season. The first must be sufficiently exercised to prevent plethora, by walking, trotting and long canters in company, which causes emulation; the last may be exercised singly or in twos, and do nothing but walking, which steadies them, gives confidence, appetite and thirst. With the latter kind greediness is to be encouraged, with the former to be alleviated. Generally, as previously stated, leggy, flat-sided, light-loined,

light-carcassed horses, with short back ribs will be delicate horses, and round carcassed, broad loined, full ribbed horses of the contrary kind. The gradations between the two kinds are many, and the treatment should be as various as the gradations.

It would be desirable to establish a straw ride about fifteen feet wide or so, forming a parallelogram 200 yards by 100. This would give a gallop of more than one-third of a mile. It might be made in a paddock fenced in for the purpose, of the stable litter discarded, and would form an admirable adjunct to a racing stable, and be especially valuable for exercising young horses.

As stated before, when horses are exercised they should be classed, and do their work together according to age, stoutness, speed, sex and temper; although speed will apply to the more active period of training. Very irritable ones should be taken out alone, yearlings and two-year-olds be invariably in their own class, and fillies and mares, especially in the spring, but, indeed, at all times, separate from the horses.

As regards the yearlings and two-year-olds, their external form is often a good indication of their peculiarities, and much knowledge in this respect may be derived from their breeding. Colts and fillies that are powerfully made, short in the back, wide over the loins, well arched there, deep in the back ribs and round in the others, are generally good constitutioned, good feeders, and inclined to be gross and put on flesh rapidly. On the other hand, those with long backs, angular loins, flat sides, light in the carcase, straight in the ribs and high on the leg, are the reverse. Fillies are more troublesome to train than colts, from sexual causes, especially in the spring and summer; they come horsing more often than underbred ones; require to be more highly fed than the colts, and more warmly clad. They should not be in the same stable as stallions. When horsing, they refuse their feed, are irritable and uncertain, and run far below their best form. If it is

necessary to win a race with them they may be stinted; they then recover their form and sustain no injury from training or racing, for several months.

Throughout the winter young horses require more cantering and galloping exercise than older ones, for the reason alluded to before, that they have not learned their business, which is galloping; and that thereby their joints are suppled, and their stride is extended. An old horse, whose joints are set, and whose pace is established requires very little work of that kind, except in sharp training, when, of course, he must be sent along to keep his wind right. When I was in the West Indies, while other racehorses were eating the bread of idleness—for our races in each island were either annual or biennial—I used to drive mine in buggies, and hack them about like common horses, often lending them to ladies to ride along the roads, and I am sure it did them more good than harm. Riding and driving racehorses is, however, risky, but it is better than idleness, to which in a well managed stable, horses should never be subjected, and of course I do not seriously recommend it. If a horse, of whatever age, above two years old, has been properly treated during the winter months, up to the first of March, there is no reason why he should not be fit to run on the first of April, at any distance under a mile and a quarter, provided the weather and ground between those dates are favourable. A good many trainers win races with inferior horses early in the season, because they have laid the foundation of fitness during the winter. This applies to horses of all ages, but especially to those of three years old and upward. The same result is obtained with two-year-olds, but more often in this case from the fact of their training youngsters that "come early," which is the case with fillies and horses of certain breeds. The most profitable racing, especially where betting forms a large part of the emoluments, is that where you win early and late in the season. In the first instance you meet horses unprepared, and in the second over-prepared, or, in other words, jaded. With

all horses, this applies, but more especially with mares, who often lose their form during the summer months. More than that, some horses will stand a preparation on the softer training grounds of spring and autumn which they would not undergo during the intervening months. In this way one may miss many of the great races of the year, it is true, and yet derive greater benefit to the exchequer.

When the training ground admits of exercise at the canter or gallop, the horses must be taken along. The amount of galloping must, of course, be gradual as regards pace and distance, and suited to the condition of the animal. The maxim that "horses should love both their food and work" must never be lost sight of. It is the keynote of all exercise and work. This combination is the harmony that produces successful results. When you see a horse in his gallop striding away with his head bent into his chest, or shaking it to overcome the restraining bit, and then returning to his stable and cleaning out his manger, you know that he is well, if he is not fit. This harmony of cause and effect must be kept up; any symptoms of flagging in either must be carefully watched for and remedied in time. Do not wait until the free, generous nature of the horse has run him into the ground, and the repair of wasted energies becomes the work of a long time.

As regards the use of clothing in winter, both in and out of the stable, about which there is some divergence of opinion, I approve of it for the following reason: The warmer a horse is kept, within comfortable limits, the less food will be required for keeping up the animal heat, and the more will be available for the production of muscle. Less heating food will also be required, or, in other words, the horse will require less food than if he were unclothed, and consequently his digestive organs will not be so highly tasked.

Herbert Spencer, speaking of the Esquimaux, in relation to this question of cold as a check to animal growth, says: "Not only are the energies of the

Equimaux expended mainly in defending himself against the loss of heat, and in laying up stores by which he may continue to do this during the Arctic night, but his physiological processes are greatly modified to the same end. Without fuel, and, indeed, unable to burn in his snow huts anything more than an oil lamp, lest the walls should melt, he has to keep up that bodily warmth, which even his thick fur dress fails to retain, by devouring vast quantities of blubber and oil; and his digestive system, heavily taxed in providing the wherewith to meet excessive loss by radiation, supplies less material for other vital purposes." There is also a great temptation to secure to the animal the warmth necessary for his well-being by closing the ventilators and depriving him of fresh air.

As clothing will be required during the period immediately preceding racing, to rid him of fat both inside and outside, on that ground alone he should be accustomed to it. Regarding the horse's feelings, "Put yourself in his place" is not a bad maxim, and to those who advocate no clothing during the winter months, I ask, "How would you like it yourself?" "Do you think it would be conducive to your general comfort and muscular development to be kept shivering from want of sufficient clothing during cold weather?" In America they seldom or ever clothe yearlings during the winter, which is much colder than our own, while at home they are often allowed to remain without clothing till January. This is a great mistake, for cold stops the growth of horses as well as other animals and warmth promotes it.

If a horse, of whatever kind, has been properly treated during the winter, suffering from no disease, and undergoing no serious intermission in his work, from the time when he is put into active training, six weeks will, as I have said, be sufficient to bring him to the post fit to run any distance up to one and a quarter miles, and two months to make him compass one and a half miles. Supposing, then, about the middle of

March a horse is wanted for the first of May, and the ground is favourable for doing "work," let me proceed to consider what sort and what kind of work will be required for the three different horses, classed according to constitution.

The light, delicate horse, apt to be nervous when competing with others, to be disturbed when seeing others gallop, should be taken out by himself at the usual hour of exercise, or a little later. He should be walked and trotted about, with or without clothing, generally without, for three-quarters of an hour, and when the other horses have done their "work" and the gallop or track is quiet, he should be taken on to it, and without any change of rider sent along at the pace designated by the trainer, the proper distance, and finish in the proper place—if on a track, past the winning-post, and then be walked quietly home by a circuitous route to complete his walking exercise of, say, an hour and a half. When he returns to his stable and is watered and dressed, he will probably eat his feed with relish; whereas had he been taken on to the track to gallop with the other horses, seen them galloping, been dismounted, ungirthed, then tightly girthed, as if making a regular business of it, he would have refused his feed on his return. The same course will be pursued with him if he canters more than once; and if he exercises in the afternoon. With a horse of this description, it will be better to take him out twice for a short time than to give him all the work he requires at one time. By this means what flesh has to come off will be removed more slowly, and without detriment to his constitution, temper, or appetite. Horses of this kind should be ridden at exercise by the steadiest lads, who are not likely to play any tricks, and who can be depended upon to carry out the trainer's instructions. They will become fit to run with comparatively little work of any kind, and after running should be indulged with rest and change of food more than horses of the other kind. They should never be exercised with spurs or touched with the whip.

Should they become fit to run some time before they are wanted, they may be safely indulged with a rest and kept at walking exercise without prejudice to their wind. It is a common practice with all horses to restrict them in their food on the day of racing and night previous to it. With horses of this class, at least, the practice may be omitted with advantage, especially if they have learned to associate it with racing. I once owned a mare that, when her oats and hay were withdrawn previous to a race, was in the habit of getting excited and sweating profusely.

Horses of the second class, who are good feeders and free goers, may do their exercise together in the ordinary way. They are not likely to be upset by the scenes of a training ground or race track, or the galloping of other horses; indeed, they are rather desirous of galloping, and like it. Such horses will require more work than the first mentioned, but it may also generally be done without clothing, unless it is found that some of them do not put off flesh sufficiently rapidly, when clothing may be worn. Horses of this class will require neither whip nor spur, and should not be ridden with the latter, lest the lads be tempted to use them. An ash plant, however, ought to be carried, to threaten a horse if he is disobedient or obstreperous. These horses may be treated in the usual manner when at exercise and work, their riders being changed on the ground where those that ride them in walking are too heavy, or experience has shown that they are unable to restrain them. They will be cantered two or three times, walking to get cool between each, at the pace and the distance directed by the trainer, who will be guided in these respects by the nature of their engagements, by the progress they are making, and by the state of their wind. The increase in speed must be gradual, and should never be such as to distress the horses. To steady a free going horse, a long, slow canter of a couple of miles or so will sometimes be desirable, in addition to his regular work. The trainer will also

notice that some animals are getting more forward than others, and regulate the work and exercise accordingly.

The third class of horses, those that put up flesh rapidly, and lose it slowly, will generally be lazy in their work, and must be ridden by strong lads, able to do justice to them; lively riders with plenty of go. These horses will take more time both to reduce flesh and to get the wind right. They will generally require to be exercised and worked in clothing for that purpose, but this will tend to make them more lazy. It will be advisable to have a free going horse to lead them in their work, and such a one should be lightly weighted, in order to enable him to do the work without detriment to himself. As a general rule, such horses will be large ones, and, as I have stated elsewhere, large horses ought not to be trained so fine as small ones. They run better when they are externally big, providing their wind is right. It will be observed with all horses that as they progress in their work, they will blow, or make the snorting noise alluded to, the sooner after they are pulled up, which is a sure indication that their lungs and thorax are becoming divested of fat, or, in other words, that their wind is improving.

If any horse in any class shows signs of listlessness, or fatigue at exercise, his work may be intermitted with advantage. The outward signs of good condition are familiar to every one of experience, but they may be enumerated here for the benefit of those who have had lesser opportunities. When a horse is bloomingly ripe he is fresh, and healthy in appearance; clean and unloaded in his muscular system, bright in the eye, glossy in the coat, clean on the legs, and animated in expression. His muscles will feel hard and springy to the touch, and swell out, especially in the hind quarters where they should seem distinct and divided from each other. The crest should be firm, and closely attached to the neck. When the hand is drawn along the ribs the skin should wrinkle up, and appear loose and de-

tached. In walking his feet should strike the ground with a determined action, and his neck, held high, should rise and fall springily. A horse in good condition has an inquisitive look, and notices everything with pricked ears, without being disturbed by anything, and has an expression of confidence. When horses are fit they sweat freely after a race or gallop, and dry quickly, and the sweat is thin and clear, not lathery and soapy. When a horse does not sweat he is likely to be in a feverish condition. As to internal fitness or condition, there is only one indication that can be confidently relied on. Most people who have been in the habit of running, or of playing games which entail violent exercise when they are not in condition, will have experienced distress in the organs of respiration, which is immediately relieved when they have recovered sufficiently to draw a long breath. It is the same with the horse. When he has drawn this long breath he expires the air with a peculiar fluttering sound of the nostrils, which is termed "clearing his wind."

This double operation is performed more quickly after pulling up from a gallop, in proportion as the lungs are free from fat or other obstruction, in other words, when he is "clean inside." When the operation occurs shortly after he has pulled up, he is said to be "right in his wind." As a practical test, I should say that a horse who clears his wind thirty seconds after he has pulled up from a gallop of a mile on good ground, done in one minute fifty-five seconds, was right in his wind for that distance. But it should also be borne in mind that atmospheric differences make differences in this test and its value, and the same may be said regarding the peculiarities of horses. I may express my meaning more clearly by saying that, if I had several horses which I tested in this way, notwithstanding that they had not all cleared their wind in the same, or in proper time, or that some varied from the time noted the day before, I should consider the idiosyncrasies of the animals, and the state of the atmosphere before I de-

cided on their fitness or unfitness as denoted by the time it took them to "clear their wind."

I think it is quite sufficient to withdraw half a horse's hay the night before a race, and to feed him in the usual manner next day, giving him, however, no hay; and if he is fed five hours before the race, that interval will be quite long enough for him to digest his food. Neither would I stint him of his water. It is a common practice with trainers to give horses water out of a bottle just before the race, but I do not see that it does any good. If his nostrils and eyes are sponged and wiped, that will be enough. Nor is it desirable to have horses on the course or track a long time before they are wanted; and especially is this the case with horses that are at all irritable.

In training yearlings or two-year-olds during the winter and spring, they will all commence with the same kind of work, which will be different from that given to older horses, because the youngsters are growing, and their muscles, tendons, and bone are in a state of transition. Excessive exercise would stop their growth, and therefore it should be avoided. About an hour and a half twice a day, or two hours at one time, is generally sufficient, but as regards the length of time and other particulars, the trainer will be able to form a judgment in each case, as he observes the effect which exercise produces in each. Some will require more and some less, according as he finds them improving or standing still, which with a young one is equivalent to falling off. As the winter progresses he will be able to class his two-year-olds, and give different exercise to each class, possibly throwing up one or two altogether, and turning them into a loose box, or a straw yard. They should have but little walking exercise, and a comparatively large amount of cantering to develope their action, and they should never be allowed to tire. Their work should consist of short canters of half a mile to six furlongs, and on a straw track such as I suggested, namely, a third of a mile; twice round it at one time should

never be exceeded. Work on a small track of this kind will make them handy at turning, and teach them to use their legs, which should always be booted before, if not behind, to prevent accidents, and this last remark applies to all horses in active training. About six weeks after the regular gallops are in a condition to work on will, as I have said, be quite sufficient time to get any two-year-old, except a very backward one, for his engagements, but it should be remarked that his training is more continuous, more of the same kind, from the commencement of the winter up to the 1st of May, than that of older horses; and also that it will never do, even if it were possible, to bring him to the post in condition, or appearance similar to that described as suitable to his seniors. His appearance will be very different. A two-year-old at five furlongs in the scale of weight for age is supposed, between March and October, to improve twenty-one pounds, a three-year-old nine pounds, while a four-year-old stands still. This rate of improvement in the first named would be relatively greater during the months preceding March. This is the improvement of growth.

Consequently, the more severe training, which strips the frame of flesh, must be avoided, as it prejudices growth. Neither will it be possible to make his wind so good as that of older horses, nor will the short distances he has to run necessitate its being so. In the latter part, i.e. the last six weeks of his training for his first engagement, he will do more cantering and galloping than walking, for the chief object of the trainer is to teach him to gallop, and he should finish his gallop fast; the question of condition being, of course, important, but subordinate to education. Particular attention ought now to be paid to starting, and the colt should be practised, so as to enable him to get on his legs quickly, a very important matter in a five-furlong race, when it is considered that seven pounds makes a difference of two lengths in that distance in a true run race. The trainer will find among his lot some colts and more

fillies who get a great advantage over others in the start.

These will generally be the smaller and quicker ones, which, as a rule, will not develop greatly-increased powers as they train on, and on whom the tables will be turned by the larger and less forward youngsters as the season progresses. The former should run in the earlier races, where they will, from the above-mentioned causes, have a better chance of distinguishing themselves than when they meet superior animals to whose powers time has lent development. A two-year-old in condition to run will have much more flesh on his ribs, a softer crest, and be generally more fleshy than older horses also fit to run. The muscles will be less hard and springy, the coat less glossy, and the former will be less apparent and less divided.

The colt, however, will be bright in the eye, and have about him a general appearance of health. He will regard the crowd and the sounds and sights of the race-course with less equanimity than his more matured brother, not unlike a country lad visiting a city for the first time. In the actual race two-year-olds are keener and run more truly than older horses. All horses require a considerable amount of rest between their races, and more especially two-year-olds. This will enable them to be brought out fresh and vigorous on the next occasion, eager to start, and strong to race and finish. When once the wind has been got right it is easy in most cases to keep it right. There will, of course, be exceptions to the rule. In the United States, it is a neglect of this rest, and too great a resort to work, that is the cause of the erratic performance, of the in and out running among all horses, but especially among two-year-olds, which prevails in that country. The animals become overdone, and are unable to exercise their full powers when called upon. They get to fear, and therefore to dislike the race track, and many of them are rendered worthless for racing in their future career, often becoming rogues and jades.

It should be remembered that clothing as an auxiliary in reducing flesh and in improving the wind ought never to be resorted to unless it is necessary. Yet this is often done. When used excessively it distresses horses, brings off the flesh, indeed, but often too rapidly, and consequently weakens them. When Mr. Ten Broeck was in England, more than thirty years ago, it was generally remarked by English trainers that in their gallops the American horses were clothed more heavily and more frequently than "the faculty" approved of. Mr. Pryor, at the time I am speaking of, trained Mr. Ten Broeck's horses, and at the same date William Day was the most successful trainer of handicap winners. Mr. Ten Broeck, with that keenness of vision and judgment which characterized him, noted this. "How is it," he said one day to the trainer of Foxhall, "that you beat us so often in handicaps, and yet I think our horses are better than yours, and the handicappers treat us quite as fairly?" "I think," was the reply, "you use too much clothing." Mr. Ten Broeck shortly afterwards said to his trainer, "William Day says we use too much clothing." "Oh, he's a damned fool!" "Possibly," replied Mr. Ten Broeck, "but what damned fools we must be who can't beat him with better horses." The late Mr. Charles Bathgate, who managed Mr. J. R. Keene's horses over here, is responsible for this anecdote.

All the reason against the excessive use of clothing lies in a nutshell. If you adopt any means which takes more out of a horse than is absolutely necessary to get him fit, you are prejudicing his chances of winning.

When people say either that all horses should or that they should not be clothed in the stable, at exercise, or at work, they plainly indicate a total lack of experience; yet I have often heard such remarks made by men who are credited with knowledge and judgment in matters connected with racing. "When a horse plucks at his clothing and tears it," says Admiral Rous, "he understands his own feelings better than you do—take it off, and in saving your clothing you will benefit the animal."

"Horse sense" and "common sense" are synonymous terms, and observers who have had much to do with horses note that these intelligent animals are nearly always right. When a horse "turns rusty" and refuses to gallop, he has generally a reason for it, and, could he tell his own tale, the most ordinary intelligence would be convinced of its truth. Horses, for instance, are especially good judges of distance. I remember a hunter I owned, who, coming to dividing roads leading to his stable, used to annoy me by trying to take what I thought to be the longer way, and he was so persistent in his endeavours that at last I tried to ascertain the reason; and, after procuring an ordnance map, found that the way he chose was 300 yards shorter than the road he rejected, which proved him to be a better judge of distance than his master. In the same way, race-horses, who have run often on a particular track, will select a portion of it to run on, and it is better to let them have their own way. They are generally right, but, whether right or wrong, it is better to let them have their own way; fighting between horse and rider takes a lot out of both. I remember a horse I owned in the colonies who would always try to take the inside place at a turn when a horse leading him ran a bit wide, and he was always successful in accomplishing his purpose without an accident. But this relates more to riding than training.

When at walking exercise, horses ought not to be allowed to slouch, but should do that exercise briskly. As in short races so much depends on a good start, I recommend that in all their work horses should be made to start quickly, and under the same conditions as they start in a race. Horses are creatures of habit, and if they acquire the habit of starting quickly they will have an advantage over other horses not similarly educated. When they are doing slow work they should, of course, be pulled up to the proper pace before they have gone far. This will accustom them to pulling up after false starts, and they will then take less out of themselves

and out of their jockeys. When horses are doing their work it is customary to "put them to rights" in a convenient place near the track or gallop, and it will almost always be necessary to do so, because after walking for some time they will have emptied themselves, and the girths will have become slack from this and other causes. If this were not done, the saddle might slip back or forward and entail a serious accident. Besides, it is often desirable to change the riders, because a lad who can ride a horse in his slower paces is often unable to do justice to him in his fast work. Perhaps the trainer considers it necessary to give a horse two, three, or even more gallops at the same time of exercise at a certain pace, in order to get his wind right. He will generally have formed beforehand a pretty accurate notion of the amount of such work which a horse requires; nevertheless, he should not depend on that alone, because horses vary sometimes in their wind from one day to another from atmospheric and other causes. Consequently he should stand at the place of pulling up, and with his watch note the exact time it takes each horse to "clear his wind." The time will indicate to him the present condition of the horse's wind, and he will regulate the succeeding gallops accordingly, as to distance and pace. In this matter no information can be conveyed to him beyond what he learns from observation or from the rider of the horse. Supposing that he finds one horse very much better in his wind than he expected, in fact, fit to run at that very moment, and the race for which he is destined is ten days or a fortnight distant, he will naturally say to himself, "This horse is fit to run now, and I must be careful not to overdo him, therefore I will give him no more galloping to-day; indeed, I think I had better let him up a bit and indulge him." He will send the horse away from the track or gallop to finish his walking exercise, and perhaps give him a bran mash that night and only walking exercise the next day, for he sees quite clearly that the animal is one that he can get fit with very little work, and any-

thing beyond that which is requisite will be injurious to him. On the other hand, he may find that another horse is much worse in his wind than he expected, and it is necessary to give him an extra gallop that day, and perhaps take him out in the afternoon for the same purpose, diminishing his walking exercise if he thinks, with the increased work, it would tax him too heavily, for he knows that unless a horse is meeting inferior company he cannot expect him to win unless his wind is right. He may think him too fleshy, and would like to have more flesh off his ribs, but he knows that this will not stop him to any great extent, providing he is "clean inside;" and, indeed, most horses run much better rather "big," providing their wind is good.

Sometimes, when the time is short, and a horse's legs are doubtful, the trainer will conclude that he cannot, with work alone, get enough off him inside or outside without the risk of breaking him down. Under these circumstances he may judge it advisable to administer a dose of physic in the manner described in the chapter on physic.

When a horse is good-winded, by which I mean, when he is not liable to lay on fat inside, if he comes fit two or three days before the race, he may indulge him with walking exercise until the day of the race, and give him a brushing gallop early in the morning, not fast enough to distress him, and he will probably find him quite fit to run in the afternoon. On the other hand, some horses are so liable to put up fat inside, that it may be necessary to give them their regular work on the morning of the race, and fast at that, for though it cannot fail to take something out of them, the injury accruing will be nothing compared to that resulting from any deficiency in wind.

Trainers should, when they have an opportunity, try their horses in mud. By so doing they will be prepared, at least with an opinion, for a heavy track. A trainer is seldom to be excused if he cannot tell what effect the state of the ground will have on the running of his

horses. It may be impracticable for him to try his horses regularly when the ground is heavy, but he ought to be able to form a reliable opinion as regards how the older ones will perform under those conditions. Work in heavy ground should be avoided; it makes horses slow, and is especially injurious to two-year-olds, whom it often ruins. It would be far better to keep the horses at walking exercise. The size of the feet is no index whatever to a horse's capacity for travelling in mud, although the general impression exists that a horse with large feet will perform better when the ground is holding, and one with small feet when the going is good. "Mr. Thomas" (Tom Pickernell), the celebrated steeplechase rider, told me that one of the best horses through mud he ever rode had small feet. And I do not believe there is any external indication in shape useful as a guide in this respect. I suppose that action has something to do with it, but I have been so often deceived in this estimate of a horse's capacity to "mud-lark" that I should be sorry to act on an opinion formed from this source of knowledge. I think confidence makes a horse perform comparatively well in mud, and the want of it badly, I am not sure; but of this I am sure, viz. that small and compact horses go better than large loosely made ones when the ground is heavy, and also this condition of the ground suits those that have "dicky" forelegs. Daniel O'Rourke, almost a pony, won the Derby in a sea of mud, beating Stockwell and Harbinger and Hobbie Noble, who afterward turned the tables on him when the going was sound, and later, Sir Bevys, a compact, powerful horse, under the same conditions beat the gigantic Rayon d'Or, Ruperra and others who beat him in the St. Leger when the going was good. Palmbearer, who ran second to Sir Bevys, was a very moderate horse, and was beaten easily not only in the St. Leger, but in the Great Foal Stakes at Newmarket by Rayon d'Or, receiving seven pounds from the latter.

It is undesirable to take horses in their work all the

way at a racing pace, or in fast time. Horses that know their speed will often refuse to struggle in a severe race. It is sufficient to get a horse's wind right by moderately fast gallops and to finish the last quarter or three furlongs at a racing pace.

It should always be borne in mind that pace depends on muscular powers, and staying on wind.

Two-year-olds, galloping singly, should finish with a hack the last hundred yards or two; they will overtake and pass him, which will give them confidence.

At Newmarket and other places in England, the practice of taking horses out to exercise in the afternoon has been discontinued, because, as Admiral Rous says, "it disturbs the domestic felicity of the trainer;" but the practice is a good one, and ought to be adhered to.

The weight of lads who ride horses in their work should always be accurately ascertained, and guessing should not be tolerated. All riders of racehorses are apt to underestimate their weight. The weight of saddles, etc., ought also to be known. Then, and then only, a correct estimate can be formed of the relative powers of the animals.

In fixing the stable hours, in the chapter on stable management, I do not wish to convey that these hours be rigidly adhered to. They must, in a great measure, be regulated by local causes. In very hot weather, for instance, it will be prudent to take horses out earlier, when the day is cool, and at a time when the work they have to do will not distress them. And the same remark will apply to afternoon exercise.

When the spring handicaps come out, the trainer will be able to form a pretty correct opinion as to the chances of the horses in his string which are entered for them, and he ought certainly to know more about them than the handicapper, or the public, consequently he may be able to make a shrewd guess as to which of them is likely to win. With old horses, that is, four-year-olds and upward, who are not likely to show any improvement, he can generally count on their best form

of last year, providing they have not developed unsoundness, or gone off from other causes than condition. He will remember that such horses do not exhibit increased speed as they grow older, and that three out of four are at their best at the end of their three-year-old career; and this is especially the case with mares. Nor do they improve much in staying qualities; and if they have done so, he must ascertain it by actual experiment.

It is also a fact that frequently years do not increase the staying qualities of younger horses, and many cannot get an inch further at three than they could at two. Consequently he will have to try these also at the increased distances for which they have to run. Yearlings, not having been regularly tried, that is to say, not having been tried over racing distances, only an estimate of their speed having been formed, or indeed sought, the trainer is comparatively in the dark as regards their racing qualities, but I am inclined to think that two-year-olds, if tried over long distances, would generally show what distances they can compass at a later age, although the fact of trying them so would probably be injurious, of which I am not, however, certain, for as previously stated in the "Feather Plate" at Newmarket, two and a quarter miles, two-year-olds do not seem to have suffered, nor horses that have run in mile nurseries. I offer the above remarks because I have found the belief prevalent that age invariably brings staying qualities, and I have not found it justified by experience.

Independently of actual trials, a trainer ought to be able to form a pretty accurate opinion as to the relative improvement of his younger horses; some grow but never improve; others do not grow but make great improvement as racehorses. He ought to be able to see these things, watching, as he does, the horses from day to day.

I said a while ago that horses should not be galloped at the top of their speed in work, for the whole distance

they have to race. I gave as one reason for this, that horses who learn their speed in work will often refuse to go fast in a race. There is another, and one which applies to all horses—it distresses them. Now when a horse is distressed undue strain is laid upon the muscles, the sinews, and the interior organs, which is followed by a reaction, by, if I may use an unscientific expression, a flabbiness or deterioration of the parts affected, needing a recovery or recuperation, which necessarily occupies time and interrupts the preparation.

In working horses, the trainer's art should be directed to working a horse into condition by degrees so nicely graduated that he never should be tired. Each gallop should be progressive in pace, so as to secure this result, and time will be a very useful auxiliary in obtaining it. For example, in working a horse for a mile race, if he pulls up fresh and "clears his wind" soon after doing it in two minutes and ten seconds, the next time he is worked the trainer may order the time to be a few seconds less; the next a few seconds less than the last, and so on. By this means the horse will not be distressed, and will clean out his manger on returning to the stable. In order to insure this graduation of pace, it will be necessary either to have a good horse for leading work, and a good rider for the same, or to have a good judge of pace riding the leading horse. All good trainers know that such a rider is invaluable. When this system is not carried out, when a horse is sent along faster than he ought to be taken in his gallops, he is said to have had a "hurried preparation." This result arises from several causes. Firstly, ignorance on the trainer's part. Secondly, from an accident which has interfered with his training. Thirdly, because the race for which he has to compete is too close at hand to enable him to be trained properly. And fourthly, because the owner interferes with the trainer and insists on seeing his colours on a racecourse prematurely. This last cause, interference with the trainer, is far more common in the United States than in England, because in the former country, owners know

much less about horseflesh than in the latter, and it is less common in England with owners who know a great deal than with those who know little. The result is that horses in England who are "meant" for a race are, in general, far fitter to run than those in America, where racehorses are too often regarded as machines, on to which you have only to slip the band to make them go and win.

In the preceding chapter and elsewhere, I have not given any exact directions as regards the amount of work to be performed by horses young and old, for the simple reason that no exact directions can be given. Anyone attempting to do so stultifies himself. If exact general directions were followed with every horse, they might suit one or two in a stable, but the rest would be either over or under strained.

CHAPTER XIV.

ENTERING HORSES AND OTHER MATTERS.

Increased value of stakes—Copious entries *versus* betting—Lord Falmouth's forfeits—Pulling horses—A bad policy—Honesty the best policy—Pulling less common than it is believed to be—The immorality of pulling is purely conventional—Turf as compared with commercial morality—Touting.

THE question of engaging horses is one that must enter largely into the calculations of owners. The great increase during recent years in the value of stakes gives them an opportunity of winning large sums without having recourse to betting. Such entries, especially when the stake is made up principally of forfeits, amount to the same thing as betting after all. If an owner enters largely and wins a big stake, it will generally be found that, lumping all his forfeits together, he has taken a shorter price about his horse for the race he wins than if he had backed him at the post, or whenever betting began on that particular race. The largest winner of stakes in England, until recently, Lord Falmouth, who never bet at all, always had an enormous deduction for forfeits against his winnings. I question very much whether this mode of backing your horse pays. Very rich men, to whom the value of the stake or of the bets won is no object, will probably prefer the *éclat* of winning a big stake, and consequently an important race, but to nine out of ten men who race, whether rich or poor, money is an object; and I am sure that in the end it would be more economical to make few entries, and to back starters when they have

a good chance. It also very rarely happens that an owner cannot collect the bets he has won if he bets with good men, and he often is out of forfeits. As regards pulling horses, no doubt this often happens, but not so generally as is imagined. It is generally supposed that in order to win a handicap an owner must resort to dishonest means. I think, on the contrary, that here honesty is the best policy. As a general rule the most successful men on the turf, outside of the bookmakers, are those who run their horses straight, There are several reasons for this. The handicapper's eye ought to be, and it generally is, on a beaten horse who runs unbacked. It is also most difficult to keep secret the fact of a horse being pulled; it leaks out in one way or another, and the horse is taken care of by the handicapper. Again, horses that have often been pulled are very likely not to try when they are wanted, and they are besides liable to accident and deterioration. On the other hand, a horse that wins a race or two, if not in very good company, is almost always leniently treated by the handicapper. He looks at the win and says, "He beat nothing; the lot he beat could not win if they were turned loose," and he handicaps him lightly. I owned a mare once who was nearly first-class, and had not run as a two-year-old. I entered her in five small races where she met very bad company, and she won them all. I then entered her in a medium class handicap of a mile and a half, and when the weights came out sought her name for some time in vain. I had been looking too high in the list, and I found her near the bottom with 6st. 3lbs. allotted to her when she could have won with 7st. 10lbs. She won that race, very easily, in fact: but being a sluggish animal, the others made a race with her. I entered her again in one of the great autumn handicaps, and she was weighted exactly the same as in her last race. She went amiss and never ran again, but had she trained on, I calculated she could have won easily with 7st. 7lbs. I am certain that had the mare been pulled for the races she won, she

would have had to carry many pounds more, and I should not have had the solatium of half a dozen small wins, coupled with a fair amount of winnings in bets as consolation for failure at the greater game. I am sure, too, that horses on the turf are not nearly so often pulled as they are said to be. Most of the losers who back other people's horses are prone to ascribe their misfortunes to ill luck or the dishonesty of owners, trainers, and jockeys, rather than to their own ignorance or bad judgment, neither of which they are willing to admit. As to the immorality of pulling horses, that is purely conventional. If a man owns a horse, pays a jockey and puts up his stake, *prima facie* he has a right to perfect control over the actions of his horse and his servant, and the public has no business to interfere. This right is recognized in the case of declaring to win with one of several horses started by the same owner when he can win with another. To punish a jockey or an owner for pulling a horse seems to me very unjust and absurd, when the same end can be, and frequently is, obtained with impunity by sending the latter unfit to the post in every race except that for which he is meant; while in play or pay races, by simply scratching a horse the money of the betting public may be legally, but just as surely, or rather more surely, passed into the professionals' hands, as if the animal were actually pulled in the race. The means employed with the view of accumulating wealth on the Stock Exchange and in other commercial pursuits are not a whit less immoral than those which are reprobated on the turf. Indeed, if immorality is measured by the extent of the injury accruing to the community, they are far more immoral.

On the turf, as in other pursuits, all concealment of the business of the owner is justified in morality, if not prohibited by law. Impertinent inquiry from interested motives is, however, immoral, whether justified by law or not, and hundreds of people who shudder at the idea of pulling a horse encourage touting, and profit by it.

CHAPTER XV.

STARTING.

Importance of starting in short races—Tricks of jockeys—No whip should be used in starting—Horses should be started on the move and not from rest—Walking the reverse way—The flags and their uses—The starter's decision should be final.

STARTING horses, especially in short distance races, assumes great importance when it is considered that two lengths in a six-furlong race is equivalent to about seven pounds. The starter has great difficulties to contend with. Horses are eager, restive or sulky when brought to face him. Jockeys often have orders to get quickly away, and in front, regardless of fines, which the owner is quite willing to pay, if by encouraging disobedience of orders he can win a large stake. Perhaps, however, those who trouble the starter most are the laggards—those horses which intentionally or unintentionally fail to come up in line, and spoil what would otherwise have been a good start. When the lagging is intentional it is done for two reasons: either to wear out by continual false starts delicate and queer-tempered horses that are considered dangerous competitors, and so decrease their chances of winning, or to obtain a more favourable start for the lagging horse. When unintentional it is that some animals, mindful of the past, and dreading punishment, or merely because they are naturally disobedient, refuse to join the others. The best cure for the first is to leave the horses at the post. Notwithstanding that owners or trainers may have participated in the bad conduct of the jockey, they will generally throw the blame on him if they lose their money, and will on another occasion put up some one else; and this will prevent jockeys

from misconducting themselves. It is also necessary that the starter should be backed up by the stewards. The best cure for the second is to bring all the horses back to the delinquent: then, finding himself in company, he will generally move off without any trouble. No attendants with whips should be allowed on the track; they frighten the horses and distract the attention of the jockeys. Occasionally a restive horse may be judiciously led up to join the rest, but this should be done by a man who knows him, and in whom he has confidence. The starter should never remain in a box or occupy a fixed position. He should be on foot and move with the line of horses. The starter will find his difficulties greatly increased if he should try to start the horses themselves from a position of rest. They will, of course, not all be at rest. Some will be kicking, others rearing, more standing still, their heads facing every direction, while some will be on the move. To effect a good start, all horses should be on the move, and in line. Cavalry officers know very well that when horses are started at a walk from the halt, the line becomes broken, but that it is soon resumed when the horses have advanced a few yards. This fact should be applied to starting in races, or the principle on which it is based, viz. that horses are more easily controlled while on the move than when at the halt, just as a yacht answers her helm when she has got way on her. Consequently, when the word is given, all horses should be on the move, and, of course, they should be in line, or nearly so.

I have referred to the fact that horses and riders are eager to get away, but only in the direction of the winning-post. Not once in a thousand times does a horse show any desire to break away to the rear. This fact must also be utilized by the starter. When the horses are all assembled at the post, the starter should marshal them in their respective places, drawn for by lot, in line with the starting-post, then order them to turn the reverse way, and walk to the

rear with them himself, telling them to keep in line. They will have no difficulty in doing this, for the reasons above stated. When he has taken them a sufficient distance from the starting-post, he will then order them to turn about and walk the other way. The laggards will generally have been absorbed in the line. If he sees that the line is a pretty good one, he will give the word "Go," which, being a guttural, is better heard than "off," and the jockeys will make the best of their way to the winning-post. As to the flags, races should be started with two flags, one in the hands of the starter, the other held by an assistant starter, whose only business is to keep his eye on his superior, and lower his flag when the latter lowers his. The lowering of the assistant starter's flag will be the signal that the start is made, and jockeys should pay no attention to the other. There is a reason for this: it enables the jockeys to concentrate their attention in front, looking between the ears of their horses, as they ought to do. Keeping the eye to the right or left unsteadies both seat and hands, especially the latter, and is liable to cause a horse to deviate from the line allotted to him. Thus it will be found that jockeys who only have to look ahead retain more perfect control over their horses than when they have to look aside.

When the starter lowers his flag he should be well behind the horses, so that the riders cannot see it. If he is not satisfied with the start, he simply keeps up his flag, and the jockeys observing that the assistant starter's flag is not lowered, pull up, and return to the starting-post. The assistant starter should be about a hundred yards ahead of the starting-post, and on the same side.

I need scarcely say that the starter should be a man above reproach, and in whom all connected with racing have confidence. He should also be armed with great powers. Then jockeys will respect and obey him. The English Jockey Club rule says "The starter's decision shall not be questioned." It is a good one.

CHAPTER XVI.

JUDGING.

A single judge should be employed, highly paid and trusted—Judge Clarke—Few mistakes made—Blunders of American judges—Instantaneous photography for judging finishes.

THE practice which obtains in the United States of having several judges in the box is one that cannot be too strongly condemned. Allowing that the gentlemen who undertake this duty are perfectly incorruptible, which I believe to be the case, and ordinarily competent, which may be open to question, they are not bound by any very strong inducement to give their attention to the matter on which they give judgment. One highly paid and trusted official would give far greater satisfaction both to owners of horses and to the public in the performance of this duty. The facility he acquires by long practice, coupled with close attention, in distinguishing the various colours, and in locating their various positions at the end of the race, gives him an overwhelming advantage over the best amateurs, which is by no means discounted by the fact of his being alone and of hearing no conversation, or exclamations, which unwontedly escape people under the excitement of a close finish and tend to interrupt observation and confuse ideas. In solving a problem, or in making an observation of events that are passing, all people are greatly assisted by seclusion, and they are greatly obstructed by interference, real or imaginary. Every one knows how a bowler is put out when the umpire stands in a position where the former *thinks* he

may interfere with the delivery of the ball, although it may be that such physical interference is impossible, or at least most improbable. And the fact of people standing even silently in the judge's box constitutes an interference such as I have described. "Judge" Clarke, who for more than a quarter of a century performed the duties of judge to the English Jockey Club, and whose services were in request at every important meeting not held under the auspices of the club, whose decision was never reversed, and whose rectitude was above suspicion, never tolerated the presence in his box of any one but his own assistant. His practice was to take stock of the horses coming up to the stretch, where his familiarity with the colours enabled him to grasp the situation in a moment. Then, as the horses neared the winning-post, he confined his attention to those in front, and as they passed the post he dictated the colours of the riders to his clerk, who wrote them down at once, and there was no appeal from his decision. It is said that on two occasions during his term of office he made palpable mistakes, which, however, he refused to acknowledge. One case was the Newmarket Handicap, where he placed Peeping Tom first and St. Leger second. The race was won by half a length, and the owner of St. Leger objected, but the stewards, Mr. Chaplin, Admiral Rous and Sir J. D. Astley, refused even to entertain the objection, although I know the Admiral believed St. Leger had won; but the danger of allowing an appeal against the judge was so great that they refused to listen to it.

If I recollect aright, St. Leger was ridden in the colours given on the card which were not those registered by Joseph Dawson, in whose name the horse ran; but however that may be, both colours were very much alike. The other case was, I believe, at Goodwood, where, it is said, a horse running close under the judge's box away in front of the others won. But I have never heard this instance confirmed by reliable evidence. Mistakes will, however, happen in the best regulated

families, but in these they occur least frequently. They are very common on American tracks, for the reason that there are judges and not a judge, and that the judges are incompetent. The instances in which mistakes have been palpably made are numerous in America, and a number credited to 1889 are at hand, and could be produced by the writer, who, however, deems it wrong in a standard work to particularize and mention names unfavourably. Suffice it to say that, quoting from the official racing record of that year, in one case a race was run when the judges were absent from the stand; in another the official record states: "This horse, Redlight, won the race, which was erroneously given to Baggage (the third). The Executive Committee met the following day and decided to pay the value of the purse to Redlight also." Judge Clarke sometimes placed twelve to fifteen horses in the English Derby—all the runners—and in the Middle Park Plate on one occasion, when there were but heads between five, he placed them all.

It is considered by many next to impossible that horses should run a dead heat, and, indeed, it seems as if there must be a slight difference between all horses in a close finish.

Instantaneous photography has been suggested as a means for deciding finishes, and if the results obtained thereby could be immediately given to the public, no doubt it would be a valuable auxiliary, and before long we may see it employed. At present, however, the English public appear satisfied with the decisions of the judge, and until the public demand a change, there is no necessity for innovation. Whether justly or not, Americans appear to place no confidence in the honesty of their officials, from the President downwards, and the decisions of their judges are constantly called in question.

CHAPTER XVII.

ACCIDENTS AND DISEASES.

Trainers should be capable of diagnosing and treating them—Principal inquiries—Strains—Of the back sinew—Treatment—Blistering and firing—Their uses and effects—Absolute rest required—Anecdote—Shin soreness—Splint—Strain of the knee—Of the shoulder—Of the pastern—Of the coffin joint—Accident in New Zealand—Strain of the hip joint—Of the stifle—Of back and loins—Of the hock—Of strains in general—Ringbone and Sidebone—Navicular disease—Acute laminitis—Chronic laminitis—Dainty Ariel in New Zealand—Bone spavin—Bog spavin—Thoroughpin—Windgalls—External injuries to joints—Sandcrack—False quarter—Thrush—Corns—Worms—Roaring—Causes—Is hereditary—Cold—Imperfect definitions of—Its true nature—Mistaken ideas as to cold—Benjamin Franklin on cold—Catarrh—Influenza or distemper—Bronchitis—Chronic cough—Acute laryngitis—Chronic laryngitis—Strangles—Pneumonia—Congestion of the lungs—Tetanus—Spasmodic colic—Flatulent colic—Enteritis and Peritonitis—Cribbing.

IT is not intended, and indeed it would not be practicable, in a work on training to treat at any great length of the diseases and accidents to which the racehorse is liable, and of the various remedies employed in their cure. At the same time, it will often come within the scope of a trainer's profession, not only to judge whether, but decide how it is advisable to treat a horse under his charge, who is suffering from some removable disease or has experienced some remediable accident. Under these circumstances, it will often be judicious for him to call in the aid of a qualified veterinary surgeon to diagnose the injury and administer the remedy. At the same time the professional called in should have been in the

habit of attending on racehorses, and should have made them a speciality, because the ordinary practitioner, however skilful in his art, will have exercised it chiefly upon horses which are not called upon to do the same work as a racehorse, and to whose future a similar injury is of different significance. A horse used for carriage work, riding, or even for hunting, may contract an injury which would impair his utility but little, while it would terminate the career of a racehorse, but more often the trainer should be capable of ministering the proper remedies himself.

The principal injuries to which the racehorse is liable are blows on the legs, or strains of joints, ligaments and tendons; and I use the word "strain" in a popular sense, which every horseman will understand, if it does not convey an exactly scientific meaning.

A bad *strain of the back sinew*, as the flexor tendon is called, or of the suspensory ligament, both of which are situated at the back of the leg, terminates a horse's racing career, and it will be better to turn him out of training for good. I have seen many attempts made time after time to repair what is irreparable, and that by trainers whose experience must have shown them, if it has not taught them, the futility of attempting to bring horses suffering from such injuries to the post in a condition to run, and I can only account for these attempts in the same way that of second marriages have been explained, as "the triumph of hope over experience." Each time the same round of experience is gone through over again. The horse is physicked and rested, the leg blistered and bandaged, or perhaps fired; the animal is put to walking exercise, then trotting, and afterwards slow cantering. "How's the leg?" asks the owner. "Getting on finely; I think he'll stand." In the meantime the training bill is accumulating, which certainly does the trainer no harm. When, however, the exigencies of training require a fast gallop, crack goes the leg; or, perhaps, favouring the injured limb, crack goes the sound one. I remember

seeing the "patched up" Pace, who would probably have won the Derby in Blue Gown's year had he kept sound, for he was said to be seven pounds better than Speculum, who ran third, give way on the sound leg in the preliminary canter, and the instances might be multiplied. In such a case the first loss is the best, and the horse should be turned out of training and put to the stud, if he is worth it, or descend to some minor sphere of utility.

In lighter strains, or where the sheath of the tendon only is ruptured or injured, I do not say a complete cure will be effected; "not all the king's horses nor all the king's men, could put Hiddy Hoddy as he was again," but a horse may be patched up again, and win races, especially in inferior company and on soft ground. He should be treated as described in the chapter on physic, and if necessary more than one dose should be administered. He may then be blistered with binoxide of mercury ointment, one drachm to one ounce of lard, and should have as much rest as is compatible with healthy condition. I have always considered that blistering and firing re-establish the limb principally through the rest that they insure to it in consequence of the soreness that ensues on their application, which induces the horse to flex and rest the limb and relax the skin as much as possible; and as this sort of rest is dependent on the volition of the horse and not on that of the trainer, some inducement must be offered to the former to give it, and the only one I know is relief from pain. A high-heeled shoe is recommended by every writer on this subject, but I disapprove of it for the following reasons. Any considerable disuse of the muscles is apt to be attended by atrophy, and any continued flexion of the limb by shortening of these muscles, while their use in moderation is followed by increase of vigour.

Now, I think, under these circumstances, it is better to dispense with a raised heel, because it compels a certain position of the limb, whereas, although blistering does also to a certain extent compel a similar posi-

tion, it does so in an elastic and not in a rigid manner, as a raised heel would. That is to say, if a horse who has been blistered found relief in stretching his limb into a natural position, he could do so; whereas with a high heel he could not. Every one has observed the discomfort which horses undergo in constantly standing on an incline, and which is shown by their backing out of their stalls and resting their hind feet either against the opposite side of the gutter or on the level passage beyond it. Blister and firing also act in the following way: First, by counter-irritation at a short distance from the seat of original disease they diminish the inflammation; and secondly, by a process termed by veterinarians "sweating" they create discharge from the vessels of the injured part, which relieves them. This is a very important function of a blister, but I think the rest it insures is more important still. I am reminded of a circumstance which amused me very much at the time, and which bears upon this question of rest. A good many years ago I was visiting the stable of a very clever veterinary surgeon and dealer, Mr. Jones, of Cheltenham, who was also in the racing line, when a farmer rode into the yard on a hunter which Mr. Jones had been treating for strain of the back sinew. "Leg's getting on nicely, Mr. Jones; I thought I'd walk him in to show you." The vet examined the horse carefully, and said, "There's a great deal of humour in this leg, Smith, but I'll soon fix that; you can leave the horse with me and ride out one of mine—send him back by the boy. I'll put a good blister on this horse's back and it will draw all the humour out of the leg right up through the chest and shoulders." The farmer seemed perfectly satisfied, left his horse and went away. "I saw you looked rather surprised," said Mr. Jones to me afterwards, "and I don't wonder. The fact is, nothing I can tell them will keep these fellows from riding their horses as soon as they think they are getting well. I want them to have complete rest, and they *will* ride them about their farms, or walk them along the

road, as this fellow has done. Now, I'll put such a blister on this horse's back that they won't be able to put a saddle on him for two months, and this will insure him the rest he requires. Nature requires rest to effect her cure; if you insure it, she will work wonders, but not impossibilities, and one of these is to make a strained leg as good after as it was before such an accident.

> " 'A perfect cure's aboon her might;
> Gude faith she canna fa that.' "

The idea that severe blistering or firing produces the effect of a bandage, by tightening the skin, is, I think, a mistaken one, because the skin is so adaptable and elastic that it will cling to a skeleton, or to the greatest obesity in the same animal, with equal tightness. But we can give support by bandages and other means, which will be effectual not only in that respect, but through pressure in producing absorption and a close return to the original shape. The best I know of is the following :—

When all inflammation has disappeared, and there is nothing apparently left of the injury but a callous swelling or thickening of the sinews, take a quantity of arnica leaves and bruise them up well in a mortar. Then take a long piece of spun yarn, of the kind used on board ship, and impregnated with tar, loosely twisted, so that the strands will flatten when tightly wound, and wind it round the leg from above the fetlock, free of the joint, up to the knee; also free of the joint, paying in the bruised arnica leaves as you go, so that there will be a thin layer of them between the yarn and the skin all up the leg, and fasten the upper end of the yarn, so that it will not get loose. The sticky and soft nature of the yarn will cause it to become homogeneous in structure throughout, like the web of a bandage. The art of making this permanent bandage consists in employing exactly sufficient and uniform pressure, making it tight enough for a support, but not tight enough to impede

the circulation. This bandage, or, "charge," as it is sometimes called, acts in two ways, as a support to the tendons similar to that said to be obtained by firing, and through the action of the arnica leaves, as a restorative to the weakened vessels; in which respect arnica is the most useful contribution of nature towards the cure of muscular injuries, especially those that are sufficiently near the surface to allow of its influence. With this contrivance there is less danger of a relapse of the injury when the horse is put into work, and I have trained and won races with horses so treated, which others, discarding the charge, have been unable to train afterwards. I have, however, been very careful about their work, and have never considered them sound and capable of doing such work as they might have done with impunity before the injury occurred. This charge may be kept on for months, without injury to the animal. When removed it will be found that most of the hair has disappeared from underneath, but it will grow again.

Soreness or strain of the extensor tendons which extend the leg from the knee to the fetlock, or of the parts surrounding them, is seldom, if ever, a serious matter. The work they have to perform is comparatively light, and they seldom sustain serious injuries. This strain is seen principally with young horses, and is termed "shin-soreness" in England, and "buckshins" in America. It may also, in many cases, be simple inflammation of the periosteum, which, as its name implies, is the membrane surrounding the bone. Rest, and when all inflammation has subsided, a mild blistering ointment of biniodide of mercury one drachm, and lard two ounces, will be the best cure.

Splint, which is a bony growth, generally comes from a blow, one leg striking the other, and may come from jar on hard ground. It is generally formed on the inside of the leg, and especially the foreleg, of which the reason is sufficiently explained by the first mentioned cause. The fact of its being formed principally on the inside of the leg has led seekers for the cause to find it

in the fact, purely imaginary, that more weight is thrown on the inside than on the outside of a horse's leg. Splint is formed on either the small or large metacarpal bone of the leg and sometimes at the junction of both. It generally, but not always, producess lameness while forming and distends the periosteum. If it infringes on a tendon, it is generally supposed to cause chronic lameness, but this is not the case. On examination of a dissected leg showing a splint apparently in contact with the sinew, it will be found that the latter during the formation of the former, and while it is yet soft, has worn a perfect channel through the splint, and does not touch it when it becomes fully developed and hard. Splint, when fully formed and clear of the joint and sinew, is generally supposed not to be injurious to a horse.

If there is lameness and soreness, the part may be bathed with hot water, which will allay inflammation. Lameness will continue until the splint has developed, and it is needless to add that the horse's work must be discontinued. Ossidine, I am informed, was used by John Porter on Ormonde, without which, he stated to a friend of mine, he could not have trained that horse. I have no personal knowledge of its qualities or composition, but, as I am also informed Mr. Porter purchased the patent rights thereof, it is certain that he must have been persuaded of its value. It sems to me, therefore, worth a trial. I have always used

Biniodide of mercury, 1 drachm.
Lard, 1 oz.,

which should be well rubbed in after the hair has been shaved off, and this treatment should be continued until the splint disappears. If the splint is in the neighbourhood of the tendons, blisters often produce irritation and inflammation of the sheath of the tendon, and should not be used. Periosteotomy is recommended by some vets. Splints generally disappear with age.

Strain of the knee is rare, but will occur with calf-kneed horse. The horse will suffer pain in bending the

joint, and swelling will be apparent, principally behind the knee. The horse must be thrown out of training, and if he is calf-kneed he will not stand work again. Bleed from the plate vein about four quarts of blood. Foment with hot water, give a dose of physic, and apply with wet rags a bandage soaked with the following lotion :—

Tincture of arnica, 7 oz.
Muriate of ammonia, 2 oz.
Methylated spirits of wine, 4 oz.
Water, 3 pints.

One-quarter of the bulk of the above of tincture of cantharides.

In *strain of the shoulder*, whose symptoms cannot well be mistaken by one accustomed to horses, the limb is put forward sideways, or with an outward sweep termed "dishing," and an air of helplessness. The horse flinches when the foot is raised and drawn forward. Take from the plate vein five or six quarts of blood. Foment the shoulder with hot water four times a day and keep the part fomented warm. Give a dose of physic and apply the embrocation used for strain of the knee. The cure will be slow or quick, according to the injury, the extent of which, as the place is deep-seated, cannot be ascertained.

Strain of the fetlock, which will be sore to the touch, swelled and productive of lameness, is treated as strain of the knee, and will necessitate the disuse of the limb. If the injury is slight, it may not interfere much with a horse's training, but in such cases the injury is more probably produced by a blow. Walking exercise, when the joint is reduced, will tend to strengthen it.

Strain of the pastern will be treated similarly to strain of the knee, bleeding from the toe being substituted for the plate vein.

It is impossible to distinguish between *strain of the coffin joint* and navicular disease in the early stage. The treatment for both will, however, be the same.

This, in nine cases out of ten, terminates a horse's racing career, for it is here, by that slender and delicate mechanism, that the whole weight of the horse is sustained in galloping. Some idea of the force exerted may be formed from the following incident. At the Champion Meeting at Dunedin, in New Zealand, in 1863, in the last race of the meeting, the "Forced Handicap" for all winners, a mare called Ultima, belonging to Mr. Stafford, was running about two lengths behind the leader midway in the race, when the jockey brought the mare up to his girths; suddenly she was seen to falter and stop. On arriving at the spot with the owner and others a few minutes afterward, the mare appeared to me in great pain, sweating profusely and trembling. A gentleman who had been a veterinary surgeon examined the foot, and found a small splinter of bone piercing the coronet, where it joins the pastern, and pronounced her irretrievably injured; consequently she was put out of her misery. The same gentleman cut off the injured limb and dissected it. He assured me afterwards that the coronet bone had been splinted into over a hundred pieces. He accounted for the accident by the foot having struck an inequality in the ground, which was very hard, and he told me that he had read of one instance of the kind before. He calculated that the force exerted on the shattered bone was fifteen tons, in galloping at full speed. As the pastern of a thoroughbred may be spanned by the finger and thumb, some idea of the enormous pressure per square inch may be formed.

The hip joint is liable to strain from the horse's feet slipping outward on slippery ground, or in the stable when rising, or it may be injured by a blow against the side of the stall or in lashing out. The injured hip is dropped in going, the weight being thrown on the sound one. This accident is treated by rest, bleeding, cooling diet, green stuff, mashes, etc., and blistering with the biniodide of mercury ointment alluded to before —one drachm to one ounce of lard. I need scarcely say that the recovery will be slow and necessitate abandoning

engagements in the immediate future. When one considers that the main lever of the propelling powers is affected thereby and that atrophy of the muscles invariably ensues, the futility of expecting a rapid cure is apparent. Work is required to restore the wasted muscles, and this must be gradual.

Strain of the stifle joint is more common than the above and is produced by the same causes; the treatment, whether caused by a blow or a wrench, will be the same—physicking and bleeding in the early stages, with cool diet, and fomentations and blistering later on. It does not matter where you bleed from in this case or the last one, the object being to lower the system, and that must be done from a central vein. I wish here to remark that in the case of accidents where the injury is not at the extremities, if time is no object, bleeding may, and perhaps had better, be avoided. But everyone knows that in racing, ultimate advantage must often be sacrificed to considerations which govern the immediate future, and for the reasons that I have before given, viz. that idleness, desuetude of the locomotive powers, result in diminution of speed. Throw up a horse for a year, and he will seldom, if ever, have the same speed as if he had been kept in training. The two last injuries described are often attended by a wasting away of the whole frame, which I have remarked is not the case with injuries to the forequarter.

Strain of the back and loins occurs from various causes, from slipping up, dropping the hind legs, or lashing out vigorously, or from turning round sharply. The injury is in the muscles, and can be cured provided the spine is not affected, but with the aid of plenty of time only, and the horse must be thrown up. Bleeding, hot applications, and an embrocation composed of equal parts of laudanum, spirits of turpentine, olive oil and hartshorn, or of arnica alone, will be the remedies.

Strain of the hock is uncommon, but there are quite enough diseases peculiar to that joint to occupy the attention and the anxiety of the trainer. It should be treated in the same manner as strains of the knee.

In all cases of strain, except those that are very slight, it may be remarked once more that a perfect cure is never effected. That is to say, the injury is more liable to recur than it was to originate, and therefore, any horse who has suffered from a strain, however much he may appear to have recovered, should be considered unsound for racing purposes. When, therefore, you hear that the horse is "as sound as ever he was," you must take the remark *cum grano.*

Sidebone is ossification of the lateral cartilages of the foot which extend from the insertion of the exterior tendon on each side as far as the extremity of the heel.

Ringbone is a bony deposit around the joint, between the pastern and the coronet bone. The immediate result of these diseases is lameness, and the ultimate result stiffness of the joints, limiting their movements and destroying the elasticity of the foot. Unless checked in their early stage they are usually fatal to a horse's racing career. When, however, the bony deposit does not interfere with the joint, ringbone is often unattended by lameness, after the early inflammation has subsided, and horses will be able to race for a long time.

Blistering where there is inflammation is worse than useless in this, as in every other case, and the remedies are perfect rest, fomentation with hot water, and applications of arnica on linen bandages wound round the parts. When all inflammation has disappeared, blistering or firing may be resorted to in order to effect absorption. Ringbone is caused by a natural tendency to throw out bony matter, and perhaps this is why the disease is hereditary.

Navicular disease generally occurs in deep, strong feet, and is caused by friction of the tendon on the navicular bone, which should be beautifully smooth. When it ceases to be so, from caries of the bone, insufficiency of lubricating synovial fluid, or other cause, inflammation of the tendon sets in, then ulceration and adhesion, and of course lameness with all. I must confess that I consider this disease incurable and progressive. I doubt

if the navicular bone can be restored to pristine smoothness, and I doubt equally if a lack of synovial fluid can be supplied by any means known to veterinary art. Of course, if you keep a horse always at rest, the disease may get no worse, it may even diminish; but I am now speaking of racehorses, who can only have a temporary rest.

Stonehenge, in "The Horse in the Stable and the Field," says: "The treatment of navicular disease is only successful in the early stage." Now, I think that when lameness ensues, the early stage is passed, and the incurable stage has been entered on. I should recommend that the horse be kept in training, and fulfil his engagements. I do not consider the pain occasioned by this disease to be considerable, but the horse can be relieved of that by neurotomy, commonly called "nerving." He may win many races; the structure of his foot will go from bad to worse, but this will occasion him no pain, and he will give way suddenly. I have always found that people who own a nerved racehorse are desirous of selling him. If it is desired to attempt a cure, he should no longer cumber the training stable, and consequently I need not detail the curative means to be adopted. The disease is undoubtedly hereditary, or rather a hereditary formation induces it, which practically amounts to the same thing.

Laminitis, as its name implies, is disease of the laminæ of the foot. It is sometimes called "founder" and "fever of the feet." The laminæ or thin elastic plates which radiate between the pedal or coffin bone and the wall of the hoof resemble the thin plates on the under side of a mushroom, and number about five hundred; they sustain the whole weight of the body, besides, in conjunction with the coronary substance, forming, or developing the crust of the hoof. Being full of blood vessels, when inflammation sets in it is very rapid, and being confined in space very painful. The disease is generally caused in its acute form by

jarring the foot on hard ground. Then it is called acute laminitis. Chronic laminitis has probably, but not necessarily, the same origin but its recurrence is due to constitutional derangement.

With *acute laminitis* in bad cases, the coffin bone, severed from the laminæ, drops, the elasticity, tenacity, and generative functions of the latter are destroyed, the sole becomes convex and the horse ultimately useless. The symptoms are a rapid, hard pulse, accelerated respiration, and heat in the foot. The horse is restless from pain and stamps with his fore feet. When they alone are affected, he brings his hind feet under his body to relieve the former, which he carries forward. The laminæ cease to secrete horn, and the connection between them and the wall of the hoof eventually terminates, and the sole becomes convex, owing to dropping of the pedal bone. Immediate treatment of the proper kind may effect a cure. The shoes should be removed, the sole pared to allow expansion of the quick, the foot bled freely at the toe and placed in warm water to soften the horn. A strong dose of physic should be at once given, and the feet must be kept moist by wetted flannel. The horse should be made to stand on clay of the consistency of putty, and after the physic has worked he should have three drachms of nitre to act on the kidneys. Of course all exercise should cease until the feet have become quite cool and all inflammation has subsided, when the horse should have walking exercise on soft ground.

Chronic laminitis is generally discovered by the horse going short in his work, as if he were afraid to put out his feet. I think, as I remarked before, that it most often recurs from constitutional derangement, which actively attacks a part of the frame previously weakened or injured, or most liable to attack. It may be proper here for me to relate how I treated successfully a horse suffering from this disease. It was in 1865 that I owned and trained in New Zealand a horse called Dainty Ariel, by Riddlesworth, out of Althæa, bred in

that colony, who was entered for six or seven races, varying from one to three miles, at the Auckland September meeting of that year, and who in the handicap carried the top weight 10 st. 7 lbs. in common with one of the best horses from the south called Golden Cloud, who was the favourite for the principal three-mile race. One morning, without giving any previous sign, the horse went very short in his canter, indeed nearly tumbled down. This was ten days before the meeting. I took him home, and, after he was dressed, found his feet quite cool, though they became hot again in the afternoon. I took him out into the paddock and cantered him, with the same result. He stood fair and square on his forelegs in the stable, and, as the feet were not exceptionally hot, I was puzzled as to the cause.

Then I bethought me of a Mr. Coleman, who had brought me a letter of introduction from a friend in Australia; in this he was described as a son of the celebrated trainer Jemmy Coleman, a well-known character in England, and the writer added that he was exceedingly clever about horses and might be of use to me. To him I applied the same day; on examination he pronounced the horse to be suffering from chronic laminitis, and I subsequently ascertained that he had been that way before, which I did not know when I bought him. Mr. Coleman advised diminishing the supply of oats, substituting green food for hay, and standing the horse on damp clay, and he also recommended me to confine him to walking exercise, five or six hours a day, as much up hill as possible, and dismounting the rider when it was necessary to go down hill. He told me he should have recommended a dose of physic if the time had not been so short. I complied implicitly with his instructions, and on the fifth day gave the horse a canter of a few hundred yards, and had the satisfaction of noting a considerable improvement in his action, which, however, was not all that could be desired. Mr. Coleman was satisfied with the progress made and desired me to continue the

same treatment. On the ninth day, that is the day before the meeting, I gave him a three-mile canter, finishing the last quarter fast, and he pulled up sound, with his fine action quite restored, and would not have blown out a candle. Mr. Coleman remarked that probably the horse had never been so fit before in his life and never would be again, and told me that he was going to back him for all he was worth. The fact of the horse doing no fast work sent him away down in the betting, and we got splendid odds about him for the three-mile race, which was a prepost betting event. It was the second event of the meeting, and Dainty made nearly all the running, and won in a canter, with Golden Cloud second. The trainer of the latter told me he had thought it impossible that any horse in New Zealand who had not had a gallop for ten days could beat his horse. My horse won or walked over for all the races for which he was entered, and in the "Forced Handicap" for all winners terminating the meeting of three days, ridden by that fine horseman, Major, afterward Sir General, Thomas D. Baker, of Afghan fame, he won, carrying 12 st. 4 lbs. with 14 lbs. in hand, 1¼ miles, giving 18 lbs. to Golden Cloud, whom the handicappers had estimated to be his equal, and the public his superior. The owner of Golden Cloud wrote to me that he must on his running be far away the best horse ever seen in New Zealand. Mr. Coleman's anticipations were realized, for although the next year, after I had left the colony, Dainty Ariel won the Auckland Jockey Club Cup, three miles, and other races, he never showed the same brilliant form again. I may add that after the races, when I sold him because I was leaving the colony, he went perfectly sound both on the turf and trotting on the hard macadamized road. This experience has often led me to question whether we cannot often dispense with a good deal of fast work, and rely more on walking exercise in preparing a horse, especially for short distances.

Bone spavin is extosis or morbid enlargement of the

adjoining surfaces of the inside of the tarsal bones, five in number, lying in a cluster together, which form the hock joint. Any practical horseman can detect it at once when standing behind the horse. It often destroys the free action of the joint by causing auchylosis, or union of the bones, and consequently stiffening of the joint. It is common to all horses, but mostly so with cowhocked ones. William Day says he has never found any injury to a horse's racing capacity ensue therefrom, which appears a strange assertion, coming from so experienced an authority. As it is productive of lameness it must be injurious in that respect. I know that horses, after going some distance, will gallop sound, but they come out lame again, and this cannot but affect their running. Nevertheless, spavined horses do win races, and the disease does not stop them so much as might be imagined; at the same time though spavin may not extinguish a horse's chances of winning a race, it must certainly detract therefrom. Absolute rest, and the usual treatment to produce absorption and a healthy condition of the bone, is recommended. Firing is commonly employed, but, as explained before, it only insures rest, and acts as a counter-irritant, both of which purposes may be served without actual cautery. Cool diet, fomentation, and blistering with biniodide of mercury one drachm, lard one ounce, is the best treatment. A very clever vet may induce good results by subcutaneous scarification, and setons are recommended by some writers. Bone spavin is hereditary, whether from the transmitted formation of the hock, or from disease of the bone, I do not know, but probably from both.

Bog spavin, or blood spavin, generally attacks young horses, and is situated on the inner side of the hock, between the tibia and astragalus. It is seldom productive of lameness, and is a secretion of the synovial fluid, but it is a sign of injury or weakness of the joint. Pressure, coupled with cold water, is the only treatment I know of that will have good effect.

Thoroughpin is similar in nature to the above, and is visible in the outside of the hollow of the hock. I have never seen a case in which it was productive of lameness, although William Day considers it a frequent cause of lameness. It indicates injury, or over-work, which amounts to the same thing. It is treated in the same manner as bog spavin.

Windgalls are also indications of hard work, and are of the same nature as bog spavin, and will require the same treatment. They never entirely disappear, nor do they seem to interfere with a horse's racing qualities.

Curb is generally seen on well-formed hocks when the hind feet are naturally carried well forward. It is a strain, but can scarcely be called an accident, and is no doubt inherited with the peculiar formation of the hock. The swelling from curb is readily apparent a few inches below the point of the hock when you look at it sideways. It is supposed to be a strain of the ligaments that unite the outer metatarsal bone with the os calcis and the tarsal bones between them. Curb is accompanied by inflammation and lameness, but seldom permanent injury. William Day tells us that he has never found curb prevent a horse racing. I have, however, seen horses unable to fulfil their engagements in consequence. Curby hocked horses, both those that have and those that have not developed curbs, are generally good steeplechasers. Irishmen, than whom there are no better horse masters, don't mind curbs a bit, although they frequently fire their horses to prevent them. This merely gives the hock rest, but I believe it to be unnecessary. The treatment is reduction of inflammation by means of fomentations and repeated applications of biniodide of mercury ointment, and the horse should be kept at walking exercise to strengthen the joint.

External injuries to joints should be fomented by a stream of warm water poured over the part from a syringe. By this means no injury accrues to the

lacerated tissues. When granulation ensues, cold water may be used in the same way, and afterward an ointment of acetate of lead, 1 drachm; lard, 1 ounce; or a weak solution of nitrate of silver.

Sandcrack is a splitting up of the wall or crust of the hoof, which often runs up into the quick and produces lameness. The crack should be scored across at the upper extremity with a knife, cleaned, nicely pared out to get rid of foreign matter, and lightly seared with a hot iron. It should be daily moistened with tar, to soften the horn and prevent grit getting in. At the nearest holding-point to the shoe, perpendicularly, and midway, horizontally, so as not to touch the quick, nails should be driven through the lips of the crack, the points and heads left projecting. A piece of fine wire should then be wound backward and forward between both ends of the nails and the horn, in a figure of 8, which will not only prevent the crack from expanding, but will draw the sides together; and then the nail ends should be flattened down against the crust. Like an injured nail in the human hand, the crack will gradually and slowly work out, and when the part held by the lower nail has worked out from the growth of horn, another nail may be driven and secured in the manner above described, if necessary. The horse may be put to any but fast work, and will suffer no injury therefrom.

In *false quarter*, the matrix or substance that secretes the horn is injured, and at the point of injury it secretes a soft growth which runs in a narrow band down the hoof. False quarter is incurable, and terminates a horse's racing career.

Thrush is caused by neglect, filthy stables, and raising the frog off the ground, thus relieving it of natural pressure necessary to its healthy condition. A reversal of the above conditions, dressing the corrupted portions with powdered bluestone, used dry first and mixed with twice its weight of lard afterwards, will effect a cure. The crack must be cleaned out daily and all corrupted matter removed.

Canker is an aggravation of thrush, extending to ulceration of the sole, and may be cured by the use of poultices at first and the remedies used for thrush afterwards.

Grease and chapped heels are caused by filth and draughts about the horse's legs, and by not drying them properly. The skin becomes inflamed, cracks, and exudes offensive matter. Care and cleanliness, accompanied by applications of glycerine, after washing with warm water and soap, and afterwards, when inflammation has subsided, an ointment composed of

Acetate of lead, one drachm.
Lard, one ounce.

Or a wash of

Chloride of zinc, thirty grains ;
Water, one pint,

or dry calomel only.

The horse may continue to do walking and trotting exercise.

Corns rarely occur in a racing stable. As in the human subject, though different in their nature, they have the same cause, bad shoeing, and are found principally in the fore feet, between the crust of the hoof and the bars on the inside. A corn is an inflammation caused by pressure, containing extravasated blood, and must be removed by cutting out. A tincture of

Chloride of zinc, half a drachm,
Glycerine, one ounce,
Water, three ounces,

should be applied frequently by means of a feather. Pressure must be thrown on the frog and sole, and the after nail on the side of the corn may be omitted. Corns will not interrupt a horse's preparation.

Horses frequently suffer from *worms*, of which the symptoms are a staring coat, an unequal appetite, often

greedy, but irregular; yellow matter under the tail and mucus in the dung, rubbing the mouth against the manger and the tail against the stall, with a dry cough; these are accompanied by loss of condition. The worms I speak of are of the genus ascaris, not bots, which will come away naturally and do but little harm. The following dose should be given every morning for a week:—

Tartar emetic, one drachm,
Powdered ginger, half drachm,
Boiled linseed sufficient to form a ball.

At the end of the week give a quart of linseed oil. If necessary, this may be repeated, and after either the single or the double course give one drachm, daily, of powdered sulphate of iron mixed with the oats. There is to be no change in the diet.

A smaller species of worm, called ascarides, inhabit the rectum, colon, and cæcum. They produce great irritation by itching. Inject every morning for five or six days,

Linseed oil, one pint,
Spirits of turpentine, two ounces,

mixed together, and give sulphate of iron with the oats as above. The symptoms of worms are often deceptive, as is proved by no worms being passed under treatment. These symptoms are sometimes due to disease of the lungs or liver, or to both being affected (and to lesion of the latter with the midriff). In this case diminish the supply of water, give regular but not strong exercise, and shun stimulants.

Roaring is caused by paralysis of the nerves, which work the muscles acting upon the arytenoid cartilages of the larynx, and the left nerve is almost invariably the one affected. It is also due to tumours in the larynx and thickening of its mucous membrane, or to any obstruction thereof. It is also caused by injury to the cartilage of the larynx, which often occurs in carriage horses from tight reining; and a horse whose head is

put on to his neck like one tightly reined up—that is, where the angle the head makes with the neck is comparatively acute—is most liable to roaring. A practical horseman will usually object to this shape of neck and head, as indicating liability to roaring. Horses with loose gullets and wide under the jaws, with the head set on at a comparatively obtuse angle to the neck, are less liable to become roarers, and small horses are less liable than large ones. The disease seems peculiar to damp climates and impure stables; it is comparatively rare in America and almost unknown in Australia, which has a very dry climate. A severe cold will often produce roaring in England. I have always considered that the prevalence of roaring among thoroughbreds in the United Kingdom is due to the unwise rule which arbitrarily dates the age of thoroughbreds from the 1st of January. Breeders, to gain a few months time, cause their mares to foal in January if they can, and the delicate foal is dropped in bitterly cold, damp weather, whence it is liable to contract disease. More than that, the mare is deprived, at the time when she most requires it, of the rich spring grass, which nature has provided for her at the natural time for foaling. She has to be fed on dry food, which causes the milk to deteriorate. It is very bad policy for breeders to have their mares drop foals before the 1st of April, and I believe that an April or May foal will be better on the same day two years hence than one dropped in January; yet breeders persist in trying for early foals, for there is a prejudice against late foals in the sale ring.

George Frederick, it is said, was foaled on the 3rd of June, the same day on which, three years afterwards, he won the Derby, and the same day on which the prince after whom he was named was born. Roaring may be alleviated, as stated in the chapter on stable management, by fresh air, and I recommend training roarers in an open shed. Firing has been tried as a counter-irritant, but, I believe, unsuccessfully. For roaring of the paralytic kind there is no cure. It is hereditary,

and so also is roaring proceeding from peculiarity of formation. Indeed, I consider most roaring hereditary, more or less. Whether hereditary or not, it is accelerated or produced by "cold," which is the popular generic term for diseases that affect the lungs and the mucous membrane that lines the air passages.

This leads us to the consideration of "*cold*" as a specific disease. And here, as in the case of most words used in a popular and of many in a scientific sense, there is great confusion and inaccuracy.

Webster defines cold, used in a medical sense, as "A morbid state of the animal system produced by cold"; Stonehenge, as "An inflammation of the mucous membrane of the nasal cavities, accompanied by a slight general fever," or as "An ephemeral fever of three or four days' duration, complicated by this condition of the nose;" "the latter," he adds, "is a more scientific definition." I fail to see anything scientific about either. A scientific description ought, I think, to give accurately the etiology, if not the whole pathology, of a disease. A medical friend informs me that he has never met with a scientific definition, and he avers that science knows little or nothing of the exact causes of cold, assuming generally the *post hoc* for the *propter hoc*. The last edition of "The Reference Handbook of Medical Science" tells us that "cold is commonly caused by 'taking cold,' but may arise from exposure to extreme heat or from the inhalation of irritating dust and vapours." What we want to know is how cold is "taken," not that it is taken, which is pretty evident. I think, however, this definition is nearer the mark, and the latter part is true. Webster's definition, which he ascribes to Dunglison, is, however, I think, wholly inaccurate, and should be exactly reversed. My experience is that from simple cold a cold is never taken, either by men or horses; whereas I know it is often, and, indeed, commonly taken from a rise in temperature, or from the body being subjected to a higher temperature. I have never met with a case where a horse "took cold" by

being removed from a warm stable to a cold one, or from a stable to the open air, while every experienced horseman knows that horses when moved into hot stables very often do take cold. As I said in the chapter on stabling, a cool stable means a healthy one, and a warm one an unhealthy one. Some French experts attribute "cold" to the activity of one of the numerous minute organisms with which the higher forms of animal life are replete, and recommend inhaling camphor, which is peculiarly destructive to the lower forms of life. This may be true, and I have certainly derived much benefit from inhaling camphor, or fancied I have done so. Nevertheless, I think there is a more satisfactory explanation of the cause of cold (which is, in fact, fever), or at least of one of the causes. Every one knows that the secretions of animals are poisonous, and produce disease if retained in the system. By secretions, I mean those portions of the food, or of the blood and flesh, themselves food transformed, which are rejected as nutritive matter by the system; and I presume, also, that every one knows how important a part the skin plays in draining the body through its pores of this noxious matter. Trant informs us that increase of heat in the body (i.e. fever) is attributable to contraction of the cutaneous capillaries; and cold and fever are invariably accompanied by costiveness of the bowels, affection of the mucous membrane, and contraction of the capillaries, which are, I believe, the causes, and not the effects, of colds and fevers—nay, more, of many, if not of almost all other diseases. I believe there is no doubt among the faculty that fevers are produced by the absorption into the system, whether by inhalation or otherwise, of deleterious matter, and that matter which is most deleterious is the excretions of animals, while to each kind of animal its own excretions are more injurious, more productive of disease, than those of any other. Need we, then, go any further to seek the immediate cause of cold? I contend, therefore, that the disease termed "cold," and the others consequent to it, are not produced, as Webster

or Dunglison assert, by cold—that is, by a low temperature, but that they are rather produced, as the "Handbook of Medical Science" says they may be, by heat and by the inhalation of irritating dust and vapours. If this be true, what a plea for cool stables and fresh air! And that it is true I hope to adduce additional reasons which will be sufficiently convincing.

When a person goes from the shade into the hot sun he often sneezes; when he takes a pinch of snuff he generally does. When he goes into a hot, impure stable he often coughs. Here the effect produced by a developed cold is produced by heat and dust, the only difference being that in the cases mentioned the effect is directly and immediately produced on the upper part of the mucous membrane, while in a cold they have originated in the lower part, or throughout. Let me now proceed to consider how the latter originated. Horses as well as men, living in the open air and in lower temperatures, require more food, and food of a more heating kind, to sustain the animal temperature necessary for health. When they have had a sufficiency for this purpose, and are removed into a warmer climate or a hot stable, what happens? The body is already in a state too plethoric for the increased temperature, the appetite does not immediately diminish, and in consequence the excretive organs have a heavier task thrown on them, and one which they are unable adequately to perform; consequently the secretions remain in the system, poison it, and produce fever, cold and other diseases. The ducts of the body cannot throw off with sufficient rapidity the accumulations of impurities; they are like drains which, having been constructed with a view to carrying off a certain quantity of sewage, are taxed with double the amount, become choked, and generate miasma and disease. Of these the most important are the fecal duct and the sweat glands of the skin, and here it is that we see the immediate results, costiveness in the former and dryness in the latter, with contraction, preventing the

escape of the secretions. Everyone knows the relief experienced by fever patients when the skin becomes moist, and perspiration exudes; and medical men are well aware that an extended period of contraction or obstruction of the ducts of the skin means death.

Now, on the other hand, we take a horse suffering from the above diseases, not in an acute or complicated stage, and turn him out to grass; the lower temperature necessitates an increased supply of animal heat, an increased supply of food; the grass acts as the laxative which you would have administered in the stable; the plentiful supply of oxygen assists in carrying off the impurities or secretions which poison the system, the air blowing through his coat stimulates the capillaries, and the exercise he takes further assists in restoring to them their normal action, while if the rain does wet his skin, it serves the same purpose. He will never stand still, if he is cold, but will move about until the circulation increases, and he feels comfortable. In a short time the coat becomes healthy and glossy, even if it does lengthen, which it is sure to do as a protection against the lower temperature to which he is subjected, and the horse recovers. The "cold" is cured with the assistance of cold, and its accompaniment, fresh air. We know that "cold" is often "taken" after physic, after sweating, after washing horses' legs, with cold water and not drying them. In these cases a disturbance of the mucous membrane and of the capillaries takes place. While cold is not taken from a fall in temperature, it is undoubtedly often the result of moisture, irrespective of temperature. Thus, cold is taken by sleeping in damp sheets, sitting in damp clothes, and by clothing horses in damp rugs. A man or a horse will be nearly frozen to death without contracting "cold," for in this case the temperature is dry. The reason "cold" is taken from the above causes is that the external moisture clogs the pores of the skin, and prevents it from throwing off the excretions. Some years ago, at the Agricultural Show in London, a

large number of the prize beasts died in consequence of a heavy fog which continued for some days, and produced the effect alluded to above. In damp, foggy weather more impurities are also retained in the atmosphere, and inhaled by man and beast, and consequently, the mucous membrane becomes diseased. When a man emerges from a room hot and stuffy to nearly the point of suffocation, into the cold air and contracts cold or pneumonia, it never occurs to him to blame the antecedent cause: he always says it was the cold air. This reminds me of a friend who used to indulge in copious libations which apparently did not affect him much until he came outside, when their effect was plainly visible. He always stoutly maintained that the whiskey never produced any evil effect on him, it was always the cold air. I think we may conclude that the causes enumerated above, namely unseasonable heat, inhalation of poisonous dust or vapour, and a plethoric condition of the body are the principal causes of cold. Benjamin Franklin said that he never caught "cold," because he lived sparely, and always rose from dinner hungry, and he contended that a man who lived in this way was practically impervious to "colds."

Common Catarrh or Cold.—The symptoms of common cold are inflammation of the mucous membrane lining the nose, and slight general fever. The pulse is accelerated, rising up to fifty, the appetite is impaired, the eyes are dull and sometimes injected with blood and generally weeping. The nostrils are more or less red at first, dry and swollen, and then discharge watery matter, which becomes thick, yellow, and purulent. It is sometimes accompanied by sore throat. The treatment consists in a bean mash with half an ounce to an ounce of powdered nitre for three or four nights in succession; discontinuing oats; and if the dung is hard a mild dose of physic. Where there is cough and much feverishness, give instead of the nitre the following ball for three or four nights:—

Tartarized antimony, 1½ drachms.
Powdered digitalis, ½ drachm.
Camphor, 1 drachm.
Nitrate of potash, 2 drachms.

If the throat is sore, rub with oil, turpentine, tincture of cantharides and hartshorn, mixed in equal parts, night and morning, or with Colman's mustard moistened. Keep the stable cool and clothe warmly. Discontinue the treatment when you notice amendment.

Influenza or distemper is cold in a severer form and probably aggravated by the same causes which produce typhoid fever, viz. bad drainage, miasma, bad food, etc. It is usually a spring disease, is sometimes prevalent in autumn, and is called "epidemic," which term is simply a cloak for ignorance. It is contagious and infectious whether the germs are transmitted in the air or by contact, and very often runs through a stable or a dozen stables situated in the same locality. It develops sometimes into pneumonia, bronchitis, typhoid fever, and other diseases. The symptoms are shivering, staring coat, hot mouth, red nostrils and eyes, tucked up belly, a weak and slightly quickened pulse, and after a while more or less cough. As the disease progresses the flanks heave. Nothing abnormal is to be noticed in the legs and feet at first, but after a while the legs often swell, so does the head. In the early stages the dung is soft but afterwards hard and dry, and there is loss of appetite. Sometimes there is sore throat. The treatment consists in clothing warmly, feeding with fresh gruel as often as possible, and administering the following drench night and morning:—

Laudanum, 4 drachms;
Spirit of nitric ether, 1 ounce;
Nitrate of potash, 3 drachms;

in a pint of water.

When an improvement takes place give a ball—

Extract of gentian, 6 drachms;
Powdered ginger, 2 drachms;

and when the appetite returns give a drachm of sulphate of iron twice a day in the feed, night and morning.

Bronchitis is inflammation of the mucous membrane of the bronchial tubes extending to the larynx and nasal passages. The membrane is red and inflamed and the air passage is diminished. A frothy mucous comes from the nostrils, attended by cough. It begins like a common cold, but the breathing is quicker, 60° or 70°. The cough is dry and hard. There is a dry, rattling sound in breathing, which is quicker than usual; nothing can be gleaned from the legs. Give the following ball twice a day:—

Tartar emetic, 80 grains;
Nitre, 2 drachms;
Digitalis, 1 drachm;
Calomel, ½ drachm;

and blister with mustard from the throat to the bottom of the chest, rubbing it well in. In very extreme cases, where the disease has been allowed to run on unchecked, blood must be taken from the jugular. As in all cases connected with the respiratory organs a cool stable is a *sine quâ non*. Clothe warmly.

Chronic cough is unaccompanied by fever, and proceeds from irritation of the mucous membrane, due to hot, foul stables, unhealthy condition of the digestive organs, caused by heating food or by worms. It very commonly induces roaring if not attended to. The proper treatment is cool, sweet stables and laxative food, which will be quite sufficient without physic. This is the only treatment, and must be permanent as regards the first part.

Acute *laryngitis* is inflammation of the lining of the larynx. The mucous membrane becomes swollen and tinged with blood, and a harsh, grating sound is heard when the ear is placed against the throat. There is also a hoarse cough, frequent respiration, with a hard pulse from 60 to 80. If the treatment is not immediate,

it is likely to result in roaring. In severe cases bleeding may be resorted to, though I do not advocate it, and in all cases the blister mentioned in connection with bronchitis. Gruel must be substituted during the acute stage for food and water; and when the acute symptoms have abated, a dose of physic will be in order. Cool stabling again, at a temperature of about 60 degrees.

Chronic *laryngitis* is often the sequence of the acute stage, accompanied by cough, and it is also caused by disordered digestive organs, in the same way as chronic cough, and should be treated in the same way. In bad cases the application of nitrate of silver on a sponge has been attended with success—15 grains to one ounce of distilled water. This disease, if not taken in time, frequently turns to roaring. Great attention should be paid to the general health and to the evacuations.

Strangles is very common with young horses, and frequently lays the foundation of roaring. It is greatly aggravated by hot and impure stables; and if the weather were fine, and the grass fresh, I should turn a horse so afflicted out to grass. Under any circumstances he should be kept in a cool, pure stable. The symptoms are sore throat, cough and fever; an abscess forms under the jaws and finally discharges. The salivary glands are implicated. Soft food, nitre in small doses, and fomentation applied to bring the abscess to a head, which should not be lanced, but allowed to discharge naturally, if possible. Blistering is recommended by most writers, but I do not see what good it effects. If any vesicant is used, it should be mustard. There often remains a permanent enlargement where the abscess was formed, and it may be removed by applying ointment of biniodide of mercury ½ drachm, lard 1 ounce, or iodine simply; but I think it is best left alone, as the throat is a ticklish thing to meddle with.

Pneumonia is inflammation of the air cells of the lungs, caused by over-exertion thereof, and likely to

occur when an untrained horse has been subjected to a severe effort in galloping or otherwise. It may also follow any disease of the respiratory organs, or congestion; that is, an abnormal accumulation of blood to the parts affected, and which there is not sufficient capacity to get rid of. It may be caused by a chill, which closes the pores of the skin. The respirations are quick, about 60 to the minute, showing distress; the pulse from 70 upward, and hard; the nostrils distended; the lining membrane is red. When there is a cough, it is short and evidently productive of pain, and the legs and feet are cold. The animal stands with the fore feet wide apart, and the nose extended. Not much can be learned by putting the ear against the chest. In bad cases bleeding will be necessary. Four quarts of blood may be taken from the jugular vein. When relief is experienced, tartar emetic every six hours, in doses of one drachm, mixed with a drachm of powdered digitalis and two drachms of nitre. The diet should be bran mashes, gruel and green food, if available, or carrot mashes. As the disease is mitigated, a blister of mustard all over the chest will be administered, and hot blankets may be employed as in congestion.

Congestion of the lungs is also caused by over-exertion and chill, or both, especially when a horse is out of condition. The heart and blood-vessels are unequal to the task of circulating and decarbonizing the blood in his lungs. Air is taken in freely, but is not consumed. The horse appears suffocated, his eyes are muddy and purple, the heart beats feebly and rapidly, as if overworked, and the countenance is distressed. When the cause is exhaustion, bleeding must be avoided. Ale or wine warmed and spiced should be poured down his throat, and he should have plenty of air. He should have gruel when he will take it. Warm bandages on his legs, which must be rubbed, as well as his ears. As soon as his appetite is re-established he may have his oats as usual. When the cause is a chill, there is rapid and laborious breathing, the horse stands with his fore-

legs wide apart, his neck extended and his flanks heaving. Sometimes he is dry and sometimes in a cold sweat. The ears and legs are cold. The eyes and nostrils of a light purple. The pulse from forty to fifty and full. The ear placed against the chest detects less sound than usual. Treatment,—Apply hot water blankets over the body and round the neck, rub and bandage the legs, and rub the ears, to produce a normal state of skin, which will be accompanied by perspiration. This will give immediate relief, and if the horse will take warm gruel it should be administered. He should not be made to sweat too much, and should afterward be rubbed and dressed by two men, one on each side, and warmly clothed, care being taken that during these operations there are no draughts in the stable.

Tetanus, commonly called lockjaw, because it sometimes causes the jaws to set firmly together, is generally the result of prick in shoeing, nicking the tail or docking it, and sometimes arises from castration or any injury producing solution of continuity in any of the muscles or nerves. The early symptoms are stareing of the eyes with an expression of horror, quivering of the muscles, the feet extended forward, resistance to any attempt to move the horse, and ears pricked. If treated early it is easily overcome, but later on the cure is difficult and the attempt often ineffectual. "Stonehenge" seems to have little faith in opium. I had a valuable steeplechase horse whom I found one morning in the condition described, and being far remote from skilled advice, I gave him a dose of opium which was more than twice that prescribed by the best veterinarians. When the vet I had sent for arrived next day, he shook his head on learning the strength of the dose administered, but admitted it had probably saved his life. The cause was a prick from a nail.

Tetanus is of two kinds, or rather produced by two causes. That which I have described above is termed symptomatic, or traumatic (from *trauma,* a wound). If the horse be costive, administer a strong purgative—

eight drachms of aloes—and the following sedative, which should be first given whether he is costive or not :—

Two to three drachms opium.
Camphor half a drachm.

Everything that disturbs the animal will increase the disease ; therefore he should be kept in a quiet place where there is no noise, and with the attendant to whom he is accustomed. He should be tempted with mashes and gruel, but no attempt should be made to force them or any drenches on him. If he cannot or will not take them, gruel should be injected through the reotum.

The causes which produce idiopathic tetanus are obscure : cold, wet, worms or internal affections are supposed to produce it. It is less sudden in action, and the cure will be more prolonged. In all cases where the disease does not rapidly give way to treatment, the services of a veterinary surgeon should be called in.

Colic, generally called spasmodic colic, is due to contraction of some portion of the intestinal tube, which arrests the food in its course, and occasions great pain. The attack is sudden ; the horse paws violently and strikes the belly with his feet, lies down, rolls on his back ; gathers his legs towards his belly ; turns his head towards the part affected with his ears laid back, these symptoms being repeated at intervals which grow less and less. Opium, about 1 drachm, cayenne pepper 2 drachms ; or instead of the latter half an ounce of ginger may be given ; but as quickness is of great importance, the following drench may be given instead :—

Decoction of aloes (Barbadoes) . .	10 oz.
Tincture of opium	2 oz.
Spirits of nitric ether	2 oz.
Boiling water	½ pint.

Anything spirituous or aromatic, such as a pint of whiskey diluted with one of water, or a bottle of beer

given warm and at once, will produce better effects than the most excellent receipt coupled with delay. Blankets dipped in hot water, pressed under the belly, will give relief, and so will exercise.

Flatulent colic is caused by the excessive generation of carbonic acid gas or sulphuretted hydrogen in the stomach, which gradually becomes distended. The symptoms before enlargement of the belly takes place are, uneasiness after feeding, laborious breathing; the horse hangs his head, fidgets, rocks the body and rests one leg alternately. When the belly swells the horse paws, but less energetically than when suffering from spasmodic colic. He will seem drowsy and little capable of exertion. The eye is sleepy, the pulse heavy, wind passes, and yet the belly becomes more distended.

No food of any kind should be given. Warm water injections, rubbing the belly, and exercise will be more likely to do good than anything else, and to get rid of the wind.

Enteritis and Peritonitis, generically termed inflammation of the bowels, are often mistaken for colic. In the human subject peritonitis is inflammation of the abdominal serous sac which lines the wall of the cavity; enteritis, of that which covers the viscera. Veterinary writers describe the former as inflammation of the peritoneal serous coat, and enteritis as inflammation of the muscular coat. The symptoms of both are—Loss of appetite, general uneasiness, shivering, dulness of eye. The pulse is rapid, small and wiry. The horse is restless, paws his bedding, looks anxiously at his sides, strikes upwards at the belly with the hind legs but does not touch it; lies down and rolls violently. The belly is tender and hard, bowels costive. In extreme cases delirium ensues and the horse becomes wild with pain: then mortification, relief from pain, and death. *Treatment.*—Foment the belly with blankets dipped in the hottest water, and held against it by a man on each side, for an hour or more. Back rake the bowels and

give every six hours the following drench, followed by injections of warm water:—

Linseed oil, 1 pint.
Laudanum, 2 ounces.

If no relief is obtained in twelve hours from six to eight quarts of blood must be taken. After fomenting rub in mustard, and continue the fomentations. Diet, gruel and bran mashes.

Cribbing is scarcely a disease, though it may be productive of disease of the larynx. It is a habit usually acquired by young horses, either in idle moments or by imitation, often from the dam. The colt takes any wooden substance, such as a paling or manger, between his teeth and gnaws it. From that he proceeds to inhale the air, and often, when this habit has been acquired, he becomes a *windsucker.* It is probable that windsucking produces irritation in the throat and air-passages, and may lead to some enlargement, and consequently to roaring; but it is more probable that windsucking is the effect of disease. The strap tightly buckled round the throat and pressing on the windpipe, which is the usual means adopted to prevent cribbing and windsucking, certainly answers the purpose, but the pressure also produces injury by thickening the lining of the air-tube, and, therefore, it should never be used with racehorses. The proper treatment is to remove from the box every projecting surface on which the horse can crib, to make the door come flush with the interior wall of the box, and to feed the horse on a clean flagstone or wooden platform let into one corner of the box. As, however, it is desirable that the door should be open at times, so as to admit light and air, a light half-door, reaching about two feet six from the ground to about six feet six above it—which is about the limit reached by a cribbing horse—should be fixed in the doorway flush with the interior wall, and, as light and air must be admitted, it should be perforated with auger holes an inch to an inch and a half in diameter, occupying the position of

the alternate squares of a chess-board. Thus treated, a cribbing or windsucking horse will do himself no injury, and will appear to lose the habit, usually, however, returning to it when he has the means. I have treated a number of horses in this way, among others Blondin, winner of the Goodwood Stakes, and have not perceived that their propensity has affected their racing qualities.

The above list of accidents and diseases by no means exhausts the long category of troubles which beset the racehorse in training, but they comprise those to which he is most liable, and wherein the trainer's knowledge will be profitably displayed, bearing in mind that the earliest treatment is generally the most successful. In all cases, however, where he has a doubt, and in almost all cases where the injury is severe, I recommend that the assistance of a veterinary surgeon should be obtained as soon as possible, but the latter *must be in the habit of treating racehorses.*

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